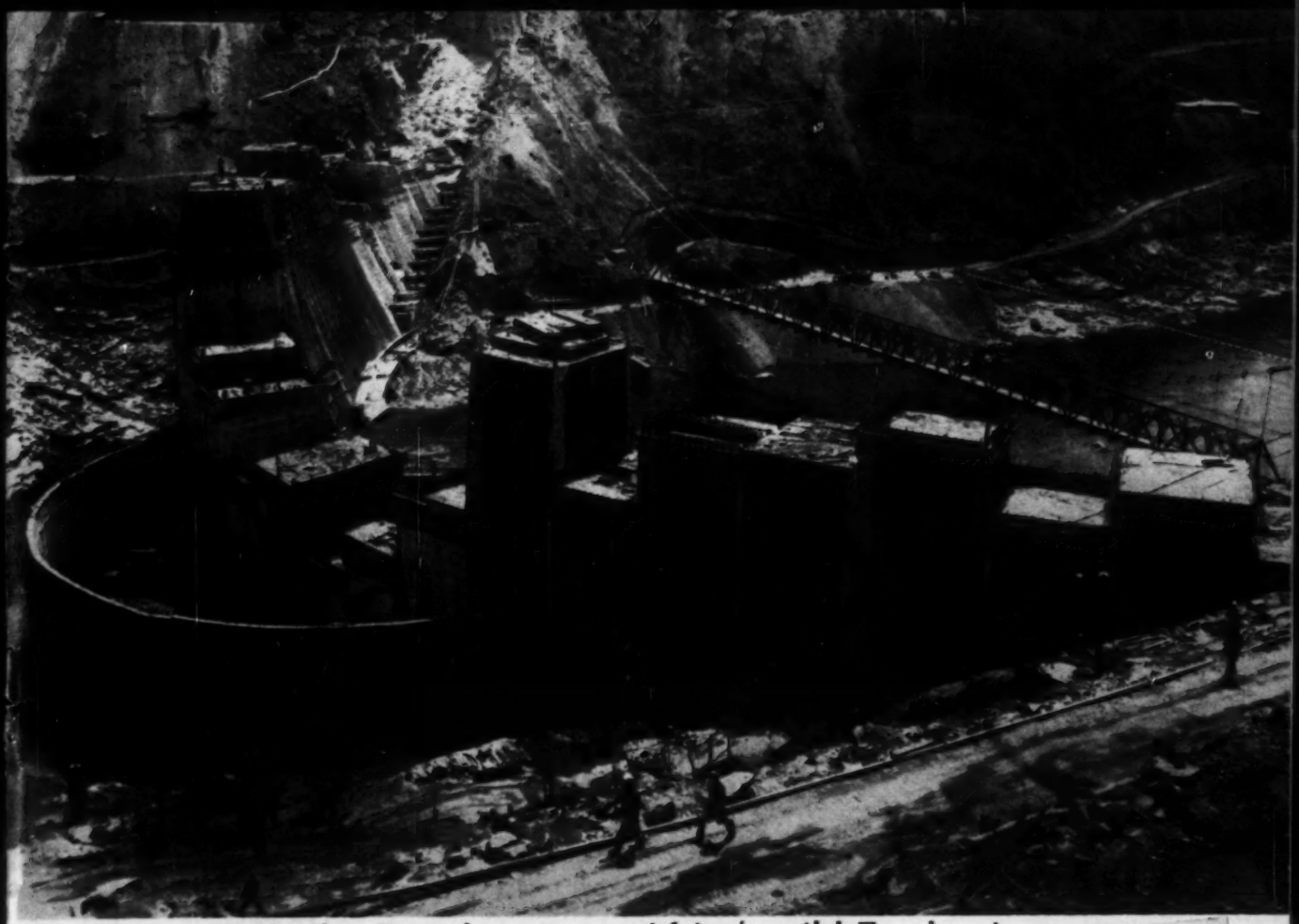
ENGINEERING NEWS-RECORD

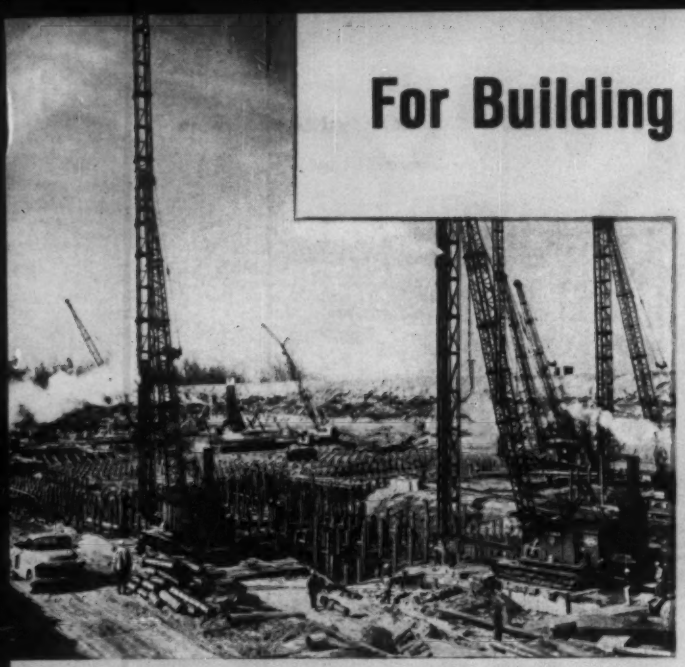


Kariba Dam harnesses Africa's wild Zambezi - 30

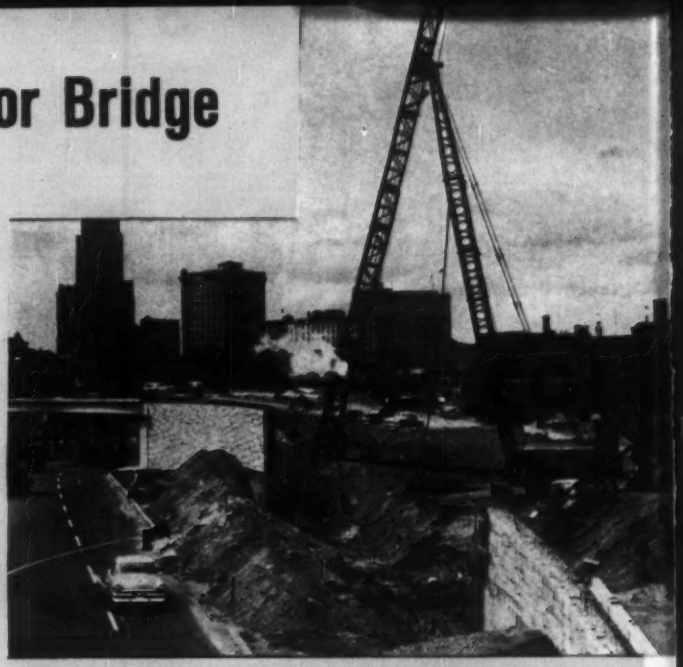
STEVENS RICE
UNIVERSITY MICROFILMS
313 N 1 ST
ANN ARBOR MICH

A McGRAW HILL PUBLICATION

For Building or Bridge



BUILDING. These Armco HEL-COR Pile Shells will provide support for the new Memphis Municipal Power Plant. C. L. Guild Construction Co., Inc., is doing the driving with the Cobi mandrel.



BRIDGE. Here is the start of a bridge foundation for the new North-South Freeway, Providence, R. I., with Armco HEL-COR Pile Shells being Cobi-mandrel driven by C. L. Guild Construction Co., Inc.

Design a STRONG FOUNDATION with Armco HEL-COR Pile Shells

For many bridge or building foundation-design conditions, Armco HEL-COR® Pile Shells can offer you important advantages.

Because their light weight speeds handling and they are extremely straight and of uniform diameter—HEL-COR Pile Shells are *quickly mandrel-driven to the required loading*. With the wide, flat, capped ends of Armco Pile Shells—you get maximum support.

Since Armco Pile Shells are supplied in lengths up to 64 feet and random cut-off lengths may be field-welded together for other piles—you can make *substantial savings* during installation.

What is HEL-COR?

Armco HEL-COR *Pile Shell is a continuous lock-seam corrugated metal pipe made on automatic machines. It is formed with helical corrugations, and the pipe is joined with a single permanent lock seam that follows the spiral in the valley of the corrugations. Lock seam can be welded, if desired.*

This pile shell can be mandrel-driven, used as drop-in pile shells, or as the top portion of composite piles. Nominal diameters range from 8⅝ to 22 inches, and gages from 14 to 18.

* * *

Armco HEL-COR Pile Shell is just one of the more than 30 Armco metal products for highway, railway and industrial applications. Use coupon for complete information on Pile Shell. Write us for data on other products. Armco Drainage & Metal Products, Inc., 4268 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

ARMCO®

ARMCO CONSTRUCTION PRODUCTS

Mail Coupon for New Free Data

Armco Drainage & Metal Products, Inc.
4268 Curtis Street, Middletown, Ohio

☐ Send me new FREE folder on Armco HEL COR Pile Shells

NAME_____

ADDRESS_____

CITY_____ STATE_____

He beat the schedule in spite of bad weather

with Allis-Chalmers Construction Machinery

In spite of the loss of 44 working days due to bad weather, the Bracken Construction Company finished the relocation of Route 861 near Bethlehem, Pennsylvania, well ahead of the 135 days allotted.

Dale Bracken
Bracken Construction Co.
Sligo, Pennsylvania

HD-21 quick-loads TS-260 motor scraper. With ripper, HD-21 weighs approximately 61,634 lb . . . delivers 225 net hp.

225,000-yd operation

This contract included the moving of 225,000 cu yd of dirt and shale. Bracken used a fleet of Allis-Chalmers machines on this operation—HD-21 and HD-16 tractor-dozers and TS-260 motor scrapers. The company also owns an HD-6G tractor shovel and a TR-260 rock wagon.

Job superintendent, Dale Bracken, says the powerful HD-21 tractor-dozer, equipped with a Tractomotive ripper, did an excellent job—loosening 24 in. of shale and rock at a pass. On tough jobs like this, the ability of the HD-21 torque converter tractor to automatically match power and speed to load lets it handle such large cuts.

Two of Bracken Company's HD-16 tractor-dozers shape a heavy fill up to 57 ft deep. A third HD-16 was used for push-loading in the borrows.

2,400-ft cycles

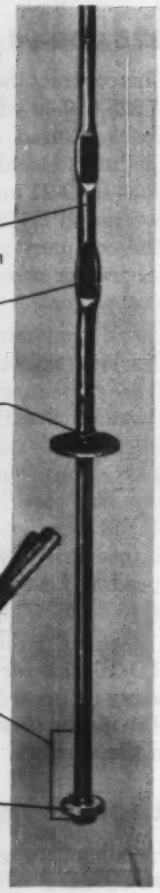
Speeding through a 2,400-ft cycle, each TS-260 with a struck capacity of 11 cu yd averaged 1,000 cu yd per shift. Bracken reports positive forced ejection and high apron lift saved time by dumping wet loads quickly and cleanly.

Preventive maintenance helps build high production

Mr. Bracken credits his company's ability to meet earth-moving schedules to the combination of modern construction machinery and a sound preventive maintenance program. Allis-Chalmers construction machinery will give *you* dependable performance like this, too. Your Allis-Chalmers dealer has machinery for every earth-moving job. He will demonstrate the machine of your choice on your job. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

Look ahead... *move ahead* ...and stay ahead with **ALLIS-CHALMERS**

only a
Snap-TY
gives you
all this



1 Full-size Rod (.225 diameter) for maximum strength.

2 Offset Type Flats for better anchorage to prevent turning.

3 Upset behind spreader washer for **positive** wall size (loose or restrained washers optional).

4 Durable, malleable iron TY-Holder that is bottom-heavy and ribbed for stability. Needs no nailing!!

5 Well-formed Heads. No interference from die marks. A quality tested, precision-built TY.

6 Uniform, flat-surfaced Head Washer that insures proper bearing.

If it is not
Richmond
it is not a
Snap-TY

Over thirty types of Snap-TYS are available—a type for every need. And all are proved, tested products with Richmond's 46 years of experience behind them.

These are the reasons why it will pay you to insist on Richmond Snap-TYS. INSIST on Richmond and BE SURE it's Richmond! Send for current Richmond Handbook which describes the full line. Write: RICHMOND SCREW ANCHOR COMPANY, INC., 816 Liberty Avenue, Brooklyn 8, New York, or 315 South Fourth Street, St. Joseph, Mo.

ENGINEERING NEWS-RECORD

EIGHTY-FOURTH YEAR OF PUBLICATION

ABP ABC MEMBER

Editorial Offices, 330 W. 42nd St., New York 36, N. Y.
New York - LOngacre 4-3000; Chicago - MOhawk 4-5800; San Francisco - DOuglas 2-4600; Washington - REpublic 7-6630

Editor, Waldo G. Bowman

Senior Staff Editor, Arthur J. Fox, Jr.
Managing Editor, Edward H. DeHart
Senior Editor, Frederick S. Merritt

Highways, Airports—Transportation
Edward M. Young, Jr.
Marc Leggiere

Buildings, Bridges—Structures
Frederick S. Merritt
Marianne Stern, David B. Hill

Rivers, Sanitation—Water Resources
James B. Sullivan
Joseph N. Todaro, John P. Mahoney

Finance, Labor—Management
Robert J. Stinson, Charles J. Harding, Joel Roth

Regional Editors
J. Roland Carr, *Chicago, 520 N. Michigan Ave.*
Laurens L. Wise, *San Francisco, 68 Post St.*

Copy—Production
Barbara Lamb
Irwin Landau
Evelyn Stepic
Shirley Russell
John C. Greenough

Presentation
Harry W. Jensen, Philip J. Horn, Jr.

Statistics, Prices, Costs—Business News
Elsie Eaves, *Manager*
Julia Mahoney, *Construction Reports*
Mildred Wetzel, Marian Sciorra
Diane Tartaglia, Marie Moravsik,
James Webber, Ruth Carlson, Economics
Marie Roessler, Evelyn Huber, *Statistics*
David Farquhar, Bertha Herrmann, *Prices, Unit Prices*

Editorial Research and Indexing
Helen Rich
Eva Gierat, Rene Hay, Nancy Moore, Leah Shanks, Patricia Witschger

Consulting Editors: **Van Tuyl Boughton,** *New York*
Nathan A. Bowers, *San Francisco*

Advertising Sales Manager: **Donald S. Robertson**

Circulation Manager: **Edward F. Bressler**

Washington Bureau, National Press Bldg., Washington 4, D. C., George B. Bryant, Jr., Chief, Alan E. Adams, Glen R. Bayless, Roy Calvin, Ernest Conine, John C. L. Donaldson, Jay Flocken, Boyd France, Anthony DeLeonardis, Arthur J. Kraft, Donald O. Loomis, Gladys Montgomery, Arthur L. Moore, Seth T. Payne, Dean Reed, Morton A. Reichek, Caroline W. Robertson, Vincent B. Smith.

Domestic News Bureaus: Atlanta—801 Rhodes-Haverty Bldg., B. E. Barnes, Chief, Frances Ridgway; **Chicago**—520 North Michigan Ave., Stewart W. Ramsey, Chief, Elizabeth Wilson; **Cleveland**—55 Public Square, William G. Meldrum, Chief, Violet Bashian; **Dallas**—901 Vaughn Bldg., Kemp Anderson, Jr., Chief, Lorraine Smith; **Detroit**—856 Penobscot Bldg., Donald MacDonald, Chief, Barbara Bigge; **Los Angeles**—1125 West 6th St., John Kearney, Chief, Michael Murphy, Jack Meyer, Marvin Petal; **San Francisco**—68 Post St., Margaret Ralston, Chief, Jenness Keene, Sue Johnson; **Seattle**—6040 Fifth Ave., N.E., Ray Bloomberg.

Foreign News Bureaus: New York—John Wilhelm, Editor; **London**—Robert Gibson; **Paris**—Robert E. Farrell; **Mexico City**—Peter Weaver; **Bonn**—Morrie Helitzer; **Beirut**—O. M. Marashian; **Tokyo**—Sol Sanders; **Caracas**—John Pearson; **Moscow**—William J. Coughlin. Correspondent in 55 cities throughout the world.

Correspondents: In 79 principal cities in the U. S. and possessions and Canada.

McGraw-Hill Economics Department: Dexter M. Keezer, Director; W. H. Chartener.

Robert F. Boger, Publisher

ENGINEERING NEWS-RECORD, Vol. 161, No. 21, NOVEMBER 20, 1958

Published weekly by McGraw-Hill Publishing Company, James H. McGraw (1860-1948), Founder. Publication Office, 99-129 North Broadway, Albany 1, N. Y. See panel below for directions regarding subscriptions or change in address. **Executive, Editorial, Advertising and Circulation Offices, McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y.** Donald C. McGraw, President; Joseph A. Gerardi, Executive Vice President; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary; Nelson Bond, President, Publications Division; Shelton Fisher, Senior Vice President; Ralph B. Smith, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator. **Subscriptions are solicited only from persons with identifiable commercial or professional interests in construction and building. Position and company connection must be indicated on subscription orders.** United States subscription rate for individuals in the field of this publication $6.00 per year, single copies 50 cents; foreign $20 per year, payable in advance. Second-Class mail privileges authorized at Albany, New York. Printed in U. S. A. Title registered in U.S. Patent Office. © Copyright 1958 McGraw-Hill Publishing Company, Inc. All Rights Reserved.

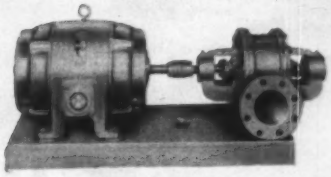
SUBSCRIPTIONS: Send subscription correspondence and change of address to Subscription Manager, ENGINEERING NEWS-RECORD, 330 W. 42nd St., New York 36, N. Y. Subscribers should notify publisher *promptly of any change of address, giving old as well as new address, and including postal zone number,* if any. If possible enclose an address label from a recent issue of the magazine. Please allow one month for change to become effective.

Postmaster: Please send *Form* **3579 to Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.**

BUILT-IN ASSURANCE

To Help Make Your Plans Work As Specified...

F-M WESTCO PERIPHERAL PUMPS



boiler feed
condensate return
hot and cold liquids
chemicals
refrigerants, etc.

Up to 200 gpm., pressures to 900 ft. High pressure at normal operating speeds. Handle widely varying heads with little change in capacity. Sizes 1¼" through 2½".

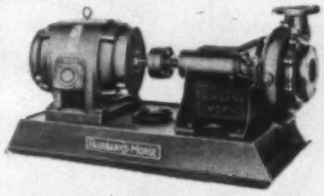
F-M BUILTOGETHER CENTRIFUGAL PUMPS

hot and cold liquids
liquid circulation
low-viscosity liquids
boiler feed
cooling towers, etc.

Up to 900 gpm., pressures to 525 ft. Close-coupled pump and motor units mount horizontal, vertical or angular. Sizes ¾" through 5".

F-M NON-CLOG PUMPS

plant waste
slurries
paper stock
fruit
fish
vegetables, etc.



Up to 30,000 gpm., pressures to 175 ft. Sizes 2" through 20". Vertical or horizontal. Bladeless or conventional.

The best-laid plans can go astray when mechanical equipment fails to deliver according to expectations or fails to give sustained peak performance. That's why Fairbanks-Morse builds something extra into all pumps so your plans work *as specified.*

F-M Pumps You Can Rely Upon

Full-rated capacity guaranteed... with built-in safety margin to assure maximum efficiency under most severe use. Rugged, durable, precision-made to maintain efficiency with minimum service.

Expert Help When You Want It

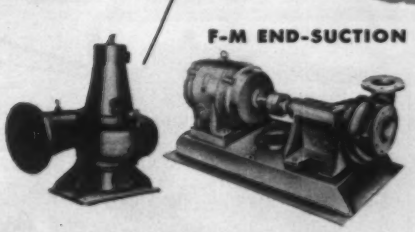
F-M Engineers are ready to work with you on any of your pump problems.

F-M SPLIT-CASE CENTRIFUGAL PUMPS

water supply; plant service
booster; circulating
air conditioning
refrigeration
chemical liquids
boiler feeds, etc.

Up to 50,000 gpm., pressures to 700 ft. Sizes 1½" through 36". Single stage or multistage.

F-M END-SUCTION PUMPS



hot and cold liquids
chemicals
circulating liquids
low-viscosity liquids
cooling towers
condenser circulation, etc.

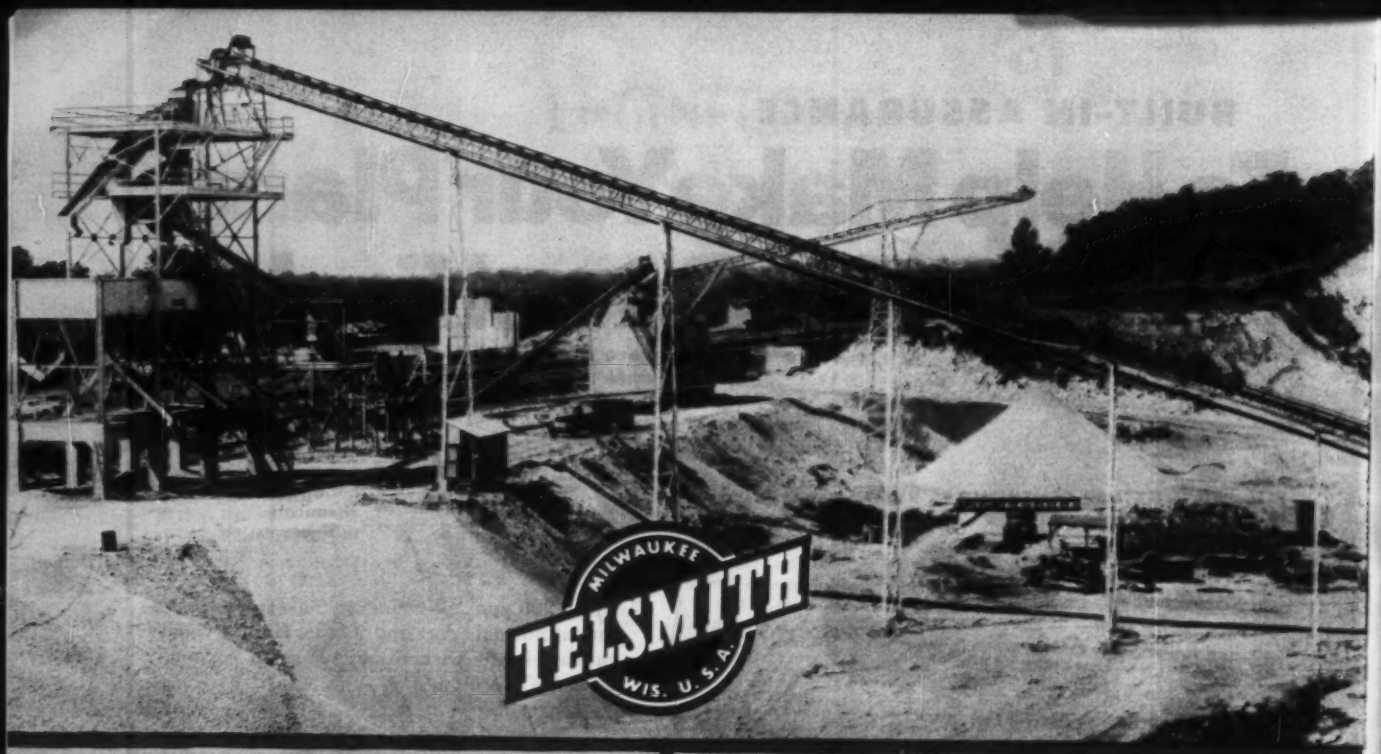
Up to 100,000 gpm., pressures to 250 ft. Sizes ¾" through 54". Horizontal or vertical.

For full information about Fairbanks-Morse pumps, call your F-M Sales Engineer or write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

FAIRBANKS-MORSE

a name worth remembering when you want the BEST

PUMPS • SCALES • DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY RAIL CARS • HOME WATER SERVICE EQUIPMENT • MAGNETOS


MILWAUKEE
TELSMITH
WIS. U.S.A.

CALIFORNIA

NEW YORK

OREGON

WASHINGTON

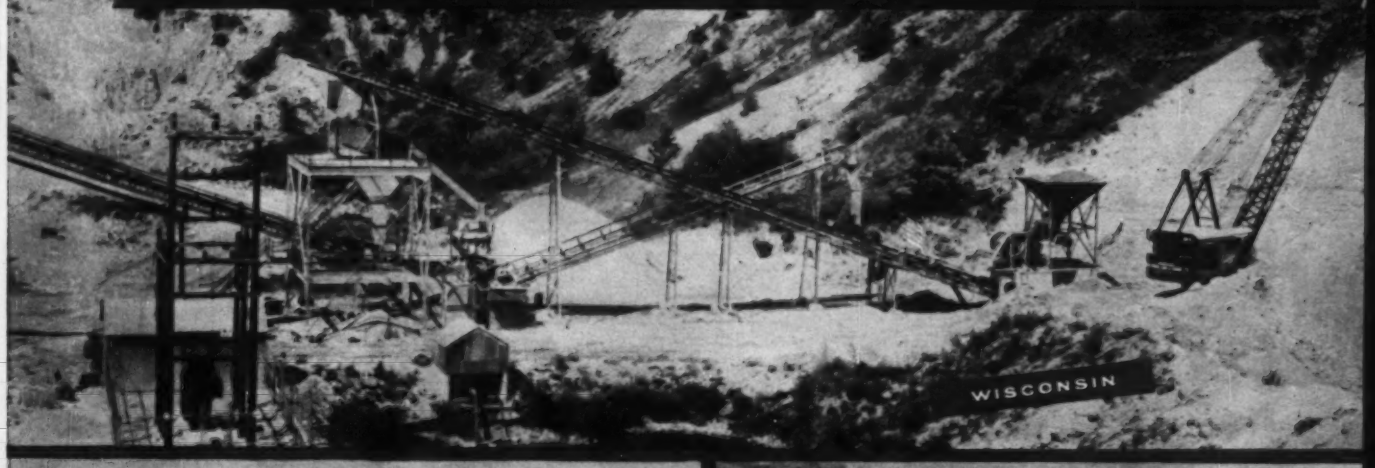
OHIO

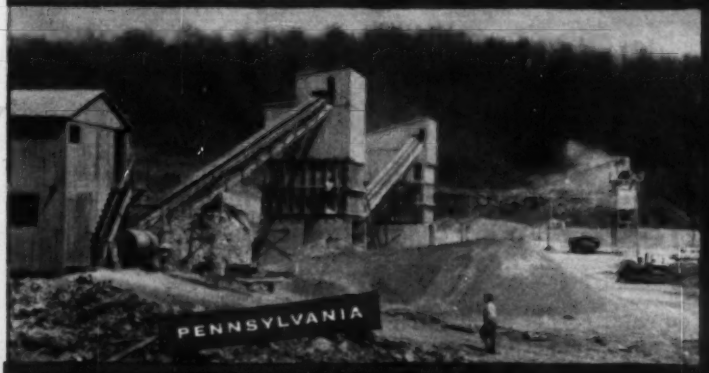
WEST VIRGINIA

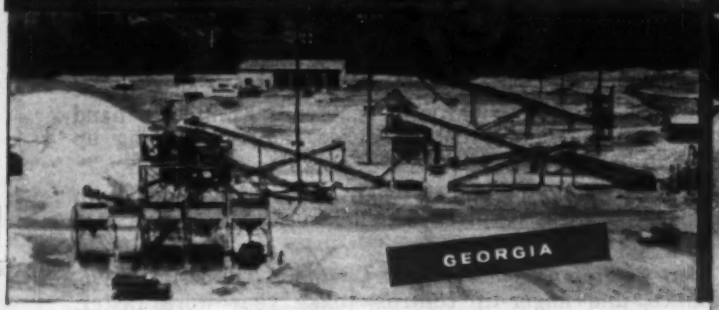
FLORIDA

TELSMITH *designs and equips*

COMPLETE AGGREGATE PLANTS







Your plant will be modern and compact in design. Its equipment will be easily and quickly installed ... engineered for big capacity, product flexibility, and low cost, efficient operation with minimum manpower—if it is *Telsmith* designed-and-equipped.

MP-18

Send for Complete Plant Guide 266

● *Names and locations of these plants gladly furnished on request.*

SMITH ENGINEERING WORKS

500 E. CAPITOL DRIVE **MILWAUKEE 1, WISCONSIN**

Representatives in Principal Cities in All Parts of the World • **Cable Address: Sengworks, Milwaukee**

what's it worth to CUT CORNERS

this DAVIS RIG never gets cornered

DAVIS LOADER HAS MORE "FIRSTS" than any other make! It packs the stamina to stay on a job—has the close-in design requiring minimum clearance—allowing maximum visibility. *Davis is truly America's finest loader buy!*

NO REMOTE CONTROL NECESSARY—The Davis Backhoe lets you see what's going on. The seat revolves with boom and bucket to always let you face your work.

You can't corner a Davis rig! Its unique ability to work in tight spots, superior maneuverability, and excellent visibility increase your profit potential by letting you perform tasks impossible for other rigs.

Works In 3 Directions—The Model 210 with exclusive 3-point mounting—at either side or center—lets you work at right angles to either side or to the rear. Eliminates hand digging flush against buildings, fences, or in finishing up footings in hard-to-reach positions.

Excellent Visibility—You sit where you can look right down on your work. Seat revolves with boom so you always face the bucket.

Alert Controls Permit Precision Operation—Superior valve, hydraulics, and finger-tip controls make your work faster, easier with lightning-fast response.

Low, Competitive Prices—Despite its quality and advanced engineering, the Davis sells for less than most other competitive models. You had better see your Davis Dealer soon!

Davis Loaders and Backhoes are available for all popular models of International, Ford, Fordson Major, Ferguson, Case, Massey-Harris, Allis-Chalmers, Oliver, John Deere, Minneapolis-Moline, and Work Bull Tractors.

SOLD AND SERVICED EVERYWHERE BY BETTER DEALERS

For the name of your nearest dealers write direct. Please specify make of tractor.

MASSEY-FERGUSON INDUSTRIAL DIVISION

1009 S. WEST STREET • WICHITA 13N, KANSAS

Even with peak pressure

Permalube Gear Oil wins when the going gets tough

Permalube Gear Oil (SAE 80, SAE 90, SAE 140, SAE 250) is a superior compounded gear oil made from carefully selected base oils and proven additives. The blend of selected base stocks results in a gear oil with exceptionally high stability and high viscosity index. The proven additives insure non-corrosive, non-foaming and high anti-weld properties.

Permalube Gear Oil is recommended for enclosed gear trains in earth-moving equipment, and industrial applications, bus and truck transmissions and differentials, where the recommendations call for extreme pressure (EP), hypoid (HP) or multi-purpose (MP) type lubricant. It is recommended for many passenger car transmissions and differentials.

Permalube Gear Oil readily passes the low speed-high torque axle test which makes it the ideal gear lubricant for heavy duty earth moving equipment. It also passes the high speed-low torque axle test with flying colors which makes it, without question, outstanding for passenger car service.

PERMALUBE GEAR OIL

When you want top performance
you want Amoco Lubricants

AMERICAN OIL COMPANY, 555 FIFTH AVENUE, NEW YORK 17, N.Y.

AMOCO ALSO PRESENTS . . .

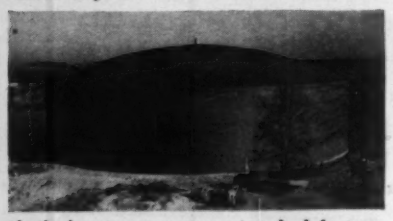
Amoco HDX Oil
Amoco Superior Diesel Oils, S-1, S-2, S-3
Perma-Flo Oils
Permalube All-Purpose Grease No. 158
Vesuvius "X" Gear Compounds

Today's Modern Water Tanks Prestressed Concrete Type

Long and Short Term Economies Making Them Popular

A modern prestressed concrete tank is not only economical in first cost, but because of its almost maintenance free character, offers any municipality real long term economy. Any tankage engineering study should include calculated maintenance costs over the estimated life of the facility. Average yearly maintenance on a 3,000,000 gallon steel tank is estimated at $2500 per year at current prices. For a prestressed concrete tank, maintenance is negligible; however, occasional painting for color effect may be desired.

When the charges for servicing the initial cost plus relative maintenance allowances are plotted, the prestressed concrete tank will often show a lower out of pocket cost to the owner in less than 5 years. When these costs and



their increases are extended for an expected service life of 50 years, the savings to the owner with prestressed concrete are enormous.

The prestressed concrete tank is also a good looking tank . . . it is inherently strong and extremely stable . . . it is designed and built for permanence. And, 75% of the contract price is spent right in your local community . . . construction is done with materials and labor available locally.

Write today for more information on Preload Prestressed Concrete Tanks.

THE PRELOAD COMPANY, INC.
211 East 37th Street
New York 16, New York

PRELOAD CONCRETE STRUCTURES, INC.
837 Old Country Rd., Westbury, L. I., N. Y.

THE PRELOAD COMPANY, INC.
711 Perimeter Road, Kansas City, Missouri

HERRICK IRON WORKS
28400 Clawiter Road, Hayward, California

THE PRELOAD COMPANY, INC.
Jefferson Tower Bldg., 351 Jefferson, Dallas, Tex.

THE CANADA GUNITE COMPANY, LTD.
7325 Decarie Boulevard, Montreal 16, Canada

Reader Comment

Transportation Needs Full Study

Sir—I couldn't agree more with the statement in your September 11 editorial, "Transportation Policy Needed," that the Engineers Joint Council "should continue to maintain its concern over lack of national transportation policy."

I also feel strongly with Engineering News-Record that it is about time the whole transportation situation be looked into. For example, the wage structure of the railroads has not been thoroughly reviewed since World War I. And, as you say, "at a time when highway construction is booming ahead, railroads are claiming poverty (and proving it in some cases), airlines are plagued with air-traffic control problems accented by the advent of the faster jet planes, and waterways are competing with one another as well as with the rails," such an over-all thorough reappraisal of national transportation policy is critically needed.

With these considerations in mind, the Committee for Economic Development has already commenced just such a study. It will look into all aspects of the problem, covering such matters as who subsidizes whom, who ought to be subsidized and by whom, the efficiency of labor and management, how competing forms of transporation might be better organized so as to assure that passengers and freight are carried most efficiently, private versus public ownership, the consolidation of federal regulation of transportation, the feasibility of mixed transport corporations which would use each form of transport in ways for which they are best suited instead of each form grasping more traffic for itself regardless of relative efficiency, and so forth. It is a big subject, loaded with problems, to such an extent that CED is not optimistic about covering all the ground and reaching conclusions at an early date.

Edmund Fitzgerald, chairman of the board, Northwestern Mutual Life Insurance Company, is chairman of the CED sub-committee making the transportation study, and its members include such transportation executives as J. M. Symes, president, Pennsylvania Railroad, W. A. Patterson, president, United Air Lines, and William M. Roth, vice president, Matson Navigation Co.

I regard myself as fortunate in being associated with such men as a member of this sub-committee.

In addition to the CED inquiry, the U. S. Senate Sub-committee on Surface Transportation authorized a broad study of national transportation policy which the Senate approved at the last session.

That there is no lack of awareness of transportation problems is indicated by the many investigations already started. In addition to the two mentioned above, the University of Michigan conducts a continuous study of travel, which means the passenger aspect of the problem. Also the New York State Public Service Commission was authorized by the last legislature to conduct an intensive inquiry into the finances of railroads operating in that state.

Out of these, and still other inquiries already started and yet to come, let us hope that we can give our national transportation system the health and strength required for it to contribute its great part to commerce, travel, and national security.

H. C. Turner, Jr.
President, Turner Construction Co.
New York, N. Y.
Member, Transportation Sub-Committee, and Research and Policy Committee, Committee for Economic Development

Is It Safe?

Sir—Mr. Saxe's proposed connection Type A-B in his article, "How to Get Better, Less Costly Welded Connections" (ENR Aug. 21, p. 34), is indeed the cheapest and simplest in comparison with the other two types, A and B.

But the safety of design is questionable, because stress concentration occurs at the notch below the top flange as a result of abrupt change in cross section. The actual stress in this region is much greater than that given by the prismatical beam formula Mc/I.

Fong C. Chan
Structural Designer
John Lyon Reid & Partners
San Francisco, Calif.

(*Reader Comment continued page 12*)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

TAKE THE HAZARD OUT OF Warning Lighting

with modern **DIETZ** equipment

- EFFICIENT
- RELIABLE
- EASY-TO-MAINTAIN

DIETZ CONTRACTOR LANTERN

Vividly illuminates exact location, extent and boundaries of hazardous areas. Burns up to 75 hours. (Kerosene fuel)

DIETZ VISI-FLASH

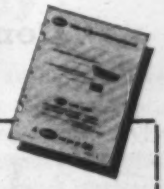
Warns *"Danger Ahead"* from either direction. Alerts drivers and pedestrians by brilliant flash periods scientifically timed for maximum visibility. (Dry cells)

DIETZ FLARE TORCH

Works best in conjunction with Dietz Lanterns to show and outline existing hazards. Up to 50 hours of illumination in all weather. (Kerosene fuel)

SEND FOR YOUR FREE COPY

of the latest authoritative manual of "Hazard Warning Lighting." Mail the coupon today.



Go and you go Safely

R. E. DIETZ CO.
114 Leavenworth Ave., Syracuse, N. Y.

Please send me a copy of the "Hazard Warning Lighting" manual.

NAME_____

COMPANY_____

TITLE_____

ST. ADDRESS_____

CITY_____ ZONE____ STATE_____

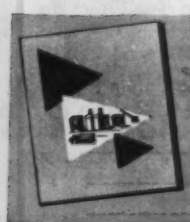
Here is the BUTLER PLANT with which Denton Construction Company set a new world's record

WORLD'S HIGHWAY BATCHING RECORD!

IN ONE DAY 6,029 LINEAL FEET

This is a record announced by the Michigan State Highway Department on behalf of Denton Construction Company

- **Paving time** . . . . . **12 hours**
- **Batching production** . . . . . **2,968 batches**
- **Cement consumption** . . . . . **5,800 barrels**
- **Paving Production** . . . . . **6,029 feet** *(length)* **x 24 feet** *(width)* **x 9 inches** *(thickness)*
- **Square yards** **16,077**
- **Cubic yards** **4,019**
- **Number of pavers** . . . . . **Three 34E dual drums**
- **Number of batching plants** . . . . . **One BUTLER TX-4**
- **Site** . . . . . **U. S. 23 near Dundee, Michigan**
- **Contractor** . . . . . **DENTON CONSTRUCTION COMPANY**



Do you want to know more about the BUTLER TX-4 and its versatility in production? Just write "TX-4" on a postcard with your name and address. We'll rush complete details immediately.

Notice that 3 pavers were used. The BUTLER TX-4 can readily satisfy 4 dual drums. What would the record be if 4 pavers had been on that job?

But interestingly, the BUTLER TX-4 is efficient and economical where a job requires only ONE PAVER. Just a matter of the number of batchers and their arrangement.

BUTLER BIN CO.

949 Blackstone Avenue • Waukesha, Wisconsin

look ahead with LEAD

Durable protection assured by Red Lead paint, used on previous job in 1932, led to specification of red lead for renovations.

RED LEAD

guards the world's largest subway

Keeping New York City's subway system in good running order calls for maintenance-minded vigilance every day of the year. Outdoor tracks, for instance, depend on steel structures that must withstand exposure to sleet, sun and a variety of chemical and corrosive fumes. Yet despite these rugged conditions, the repainting job just completed on the supports of one line was the first in 26 years. The original covering was a long-lasting coat of protective red lead primer paint.

Red Lead's value has been proved in action on tanks and tankers, bridges and buildings throughout the world. Forty-seven out of 48 state highway departments have official red lead primer specifications.

Red Lead paint is available to meet the most exacting requirements — whether they involve cost, drying time, surface conditions or exposure conditions. For unusual problems, Red Lead specialists are available to help you select the correct formulation for your conditions. Just write today.

RELY ON RED LEAD—THE STANDARD FOR STEEL PROTECTION

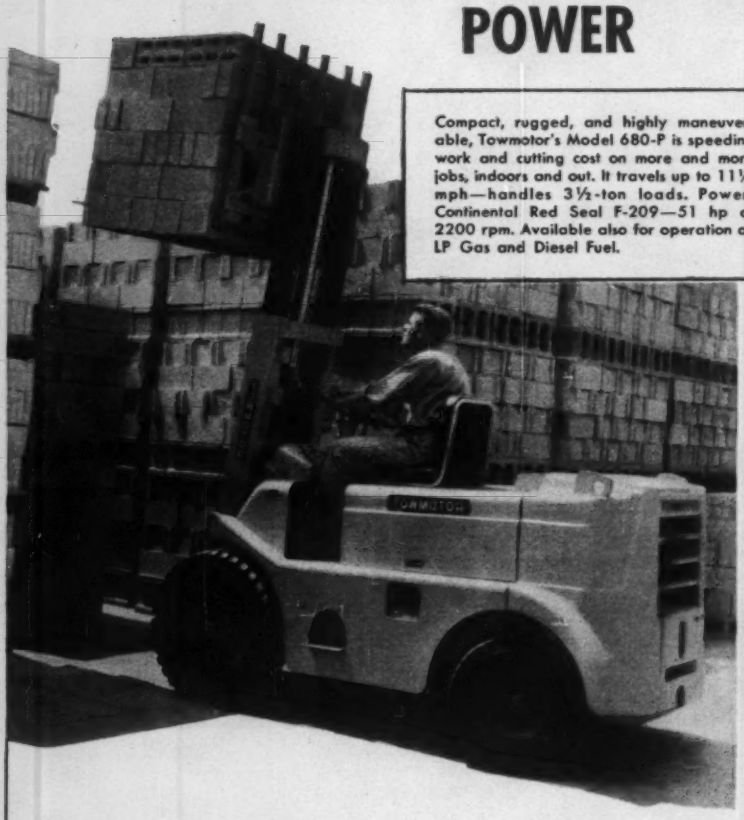
Lead Industries Association

60 East 42nd Street New York 17, N. Y.

1941

Another Winning Combination

TOWMOTOR® and CONTINENTAL POWER



Compact, rugged, and highly maneuverable, Towmotor's Model 680-P is speeding work and cutting cost on more and more jobs, indoors and out. It travels up to 11½ mph—handles 3½-ton loads. Power: Continental Red Seal F-209—51 hp at 2200 rpm. Available also for operation on LP Gas and Diesel Fuel.

The pace-setting Towmotors are a good example of what can be accomplished when industrial leaders of the caliber of Towmotor and Continental pool their efforts. Fine result of teamwork between two outstanding pioneers, they combine efficiency, driver comfort, and ease of operation, with a degree of indoor-outdoor versatility that is finding them more and more jobs in the expanding construction field. Their dependable performance, over long periods with an absolute minimum of upkeep, proves that it pays to be choosy about the power that's the heart of the machine—to buy a make that features the in-built extra value of Continental power.

●

ANY EQUIPMENT IS BETTER WITH CONTINENTAL RED SEAL POWER

CONTINENTAL MOTORS — Powerful as the Nation — AMERICA'S STANDARD®

Continental Motors Corporation

MUSKEGON • MICHIGAN

9 EAST 40TH ST., NEW YORK 17, NEW YORK • 3817 S. SANTA FE AVE., LOS ANGELES 58, CALIF.
6216 CEDAR SPRINGS ROAD, DALLAS 9, TEXAS • 1252 OAKLEIGH DR., EAST POINT (ATLANTA) GA.

. . . Reader Comment

Modernize Road Traffic

Sir—The excellent article, "The Job Ahead" (Nov. 6, p. 62) is most timely and thought provoking.

However, under "Highway Modernization," (p. 70) certainly modernization of traffic regulations and operation are as important as the creation of new facilities. It seems rather ridiculous to spend vast amounts of money for the creation of roadways for moving traffic and then permit them to be usurped and used as storage areas.

Yet few, if any, of our present roads, other than certain recently constructed freeways, can operate at more than 50% of their traffic moving capacity, primarily because of the obstructions to moving traffic that are permitted. A single vehicle stopping, standing, parking or left-turning on a roadway may reduce the capacity of the road by as much as 100%, and add greatly to the traffic hazards.

Clearing the existing roadways of the obstructions to moving traffic involves *no cost* for new construction and would add from 50% to 100% to their present traffic moving capacity.

Modernization and improvement of the existing highways and feeder roads is probably as important as the construction of new routes.

Much can be accomplished, and without cost for new construction, by:

1. Establishing more realistic speed regulations.
2. Affecting more uniform traffic regulations.
3. More rigid and impartial enforcement of traffic regulations.
4. More efficient use of existing roads and rights-of-way.

Henry O. Pond
Consulting Engineer
Tenafly, N. J.

CALENDAR

The American Society of Mechanical Engineers, 78th annual meeting, New York Coliseum, New York City, December 1-5.

American Association of State Highway Officials, annual meeting, Sheraton-Palace Hotel, San Francisco, Dec. 1-5.

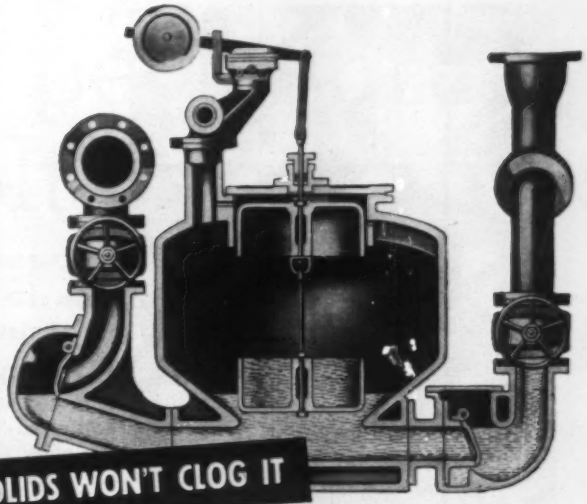
Building Research Institute, conference on "Field Applied Paints and Protective Coatings," Shoreham Hotel, Washington, D. C., Dec. 3-4.

Fourth National Construction Industry Conference, "Creative Trends in Urban Building," Hotel Sherman, Chicago, Ill., Dec. 10-11.

National Concrete Masonry Association, 1959 convention and biennial Concrete Industries Exposition, Public Auditorium, Cleveland, Ohio, Jan. 12-15.

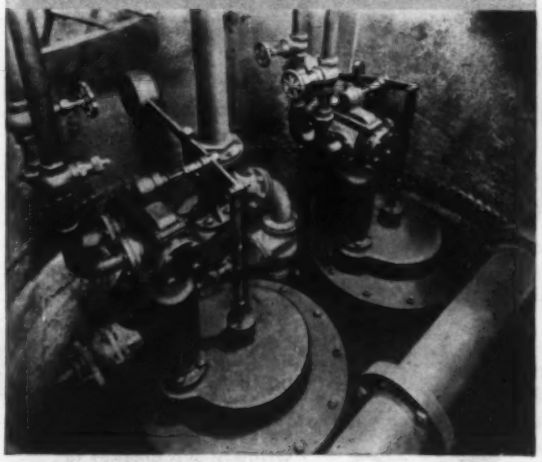
Building Research Institute, "Noise Control in Buildings," New Yorker Hotel, New York City, Jan. 14-15.

NO MORE PUMP MAINTENANCE!



SOLIDS WON'T CLOG IT

Never Wears Out



This Shone ejector has been in operation for 68 trouble-free years —in the Auditorium Hotel (Roosevelt College), Chicago, Illinois.

- **No Rotating Pump Parts**
- **No Airtight Floats**
- **No High-Speed Shafts or Bearings**

Yeomans makes both pneumatic ejectors and centrifugal pumps. But for jobs from 30 to 600 g.p.m. where you need *extreme* dependability, we'll recommend a pneumatic ejector most of the time. In the long run, it's the economical choice.

Because pneumatic ejectors are clogproof and unusually simple in design, maintenance costs run 50-75% less than for the best centrifugal pump. The smallest Yeomans ejector, for example, will pass four-inch solids. And for pumping domestic and industrial wastes, pneumatic ejectors are safer, more sanitary because they are hermetically sealed.

There are seven models in over 100 sizes to choose from. All operate on compressed air with mechanical or electrical controls that are "Yeomans" foolproof. Use the coupon below to get complete information. Also see Sweet's Catalog, Architectural File.

YEOMANS

PNEUMATIC EJECTORS

Manufacturers of pumps for: drainage • sewage • condensation return • water supply and circulation • also equipment for treatment of domestic and industrial wastes.

YEOMANS, 1999-1 N. Ruby Street, Melrose Park, Illinois

Please send me literature on the pneumatic ejectors I have checked.

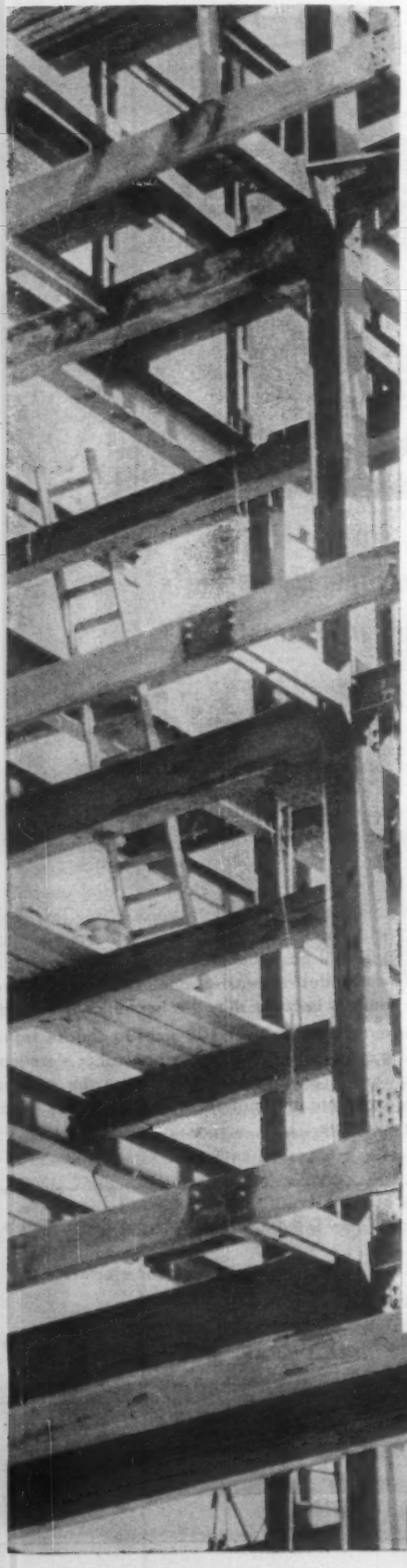
☐ The Shone® ☐ The Packex® ☐ The Expelsor®

name_____

company_____

street_____

city_____ zone____ state_____

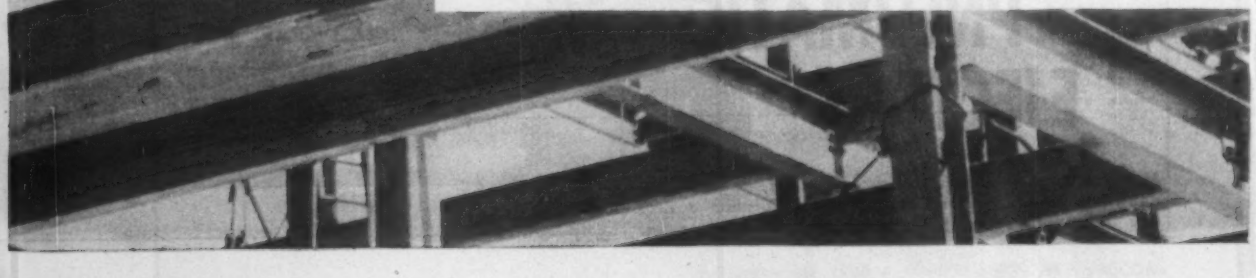


Lamson has

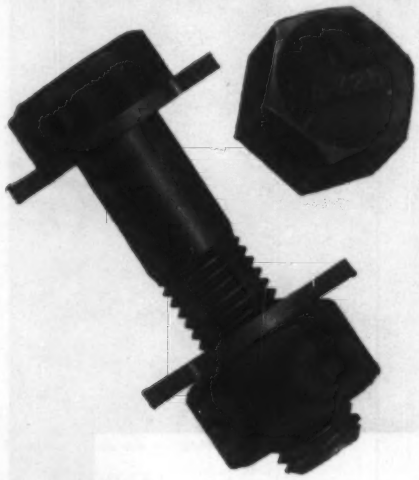
LAMSON
Dardelet Rivet Bolt

The "original" structural bolt in use for over a quarter century. It requires only a maul and wrench to produce a strong, tight connection. When the bolt is driven into the hole, the oversize ribbed shank splines are deformed to provide a body-bound fit. The Dardelet nut is spun on and when tightened, the locking threads of the nut and bolt provide a positive locked connection that can only be backed off with a wrench. No washer is required.

These Lamson structural fasteners are distributed by 19 United States Steel Supply Division Steel Service Centers in key locations throughout the country.



all three top performing structural bolts and nuts



LAMSON
High-Strength Structural Bolt

The A-325 and three radial marks on the head are the identification that this high-carbon structural bolt meets or exceeds rigid ASTM specifications. The "L" on the head identifies it as a genuine Lamson & Sessions bolt. Always look for these identifying marks and you'll always be sure you are getting genuine ASTM approved structural fasteners. This bolt is used with two washers and a nut made of high carbon steel to ASTM requirements.

LAMSON
Structural Nut

This is the nut that is used with both the Lamson High-Strength Bolt and the Lamson High-Tensile Bearing Bolt. The three long indented arcs on each end of the nut indicate that it meets or exceeds ASTM specifications. The short dashes inbetween the arcs identify it as a genuine Lamson nut.

LAMSON High-Tensile Bearing Bolt*

This new bolt assembly, made to ASTM A-325 specifications, is superior to, yet costs no more than Standard High-Tensile or Dardelet Structural assemblies. It is particularly well adapted for use in structures subject to dynamic or reversed stress loading and can be readily assembled by one man with conventional tools and equipment. It has high shear and bearing values because its knurled body fills the hole to make a joint in initial bearing. This body-bound feature, plus high strength characteristics eliminates the possibility of slip in joints and provides added rigidity and stability in the structural connection. Only one washer is required with the High-Tensile Bearing Bolt.

* PATENT APPLIED FOR

When the first rocket from Cape Canaveral, Florida reaches the moon. Lock Joint will have played a role in one of this generation's greatest dramas. To supply the torrent of water required every time a rocket blasts off—one-half million gallons or more—the experts operating this world-famous missile station rely on Lock Joint Prestressed Concrete Cylinder Pipe.

Proven completely dependable over the years, Lock Joint Pipe requires negligible maintenance, resists corrosion, and is not subject to tuberculation. Our guided missile experts at Cape Canaveral can be assured of a trouble-free water supply, undiminished over the lifetime of this Lock Joint installation, which is conservatively estimated at more than 100 years.

LOCK JOINT PIPE CO.

East Orange, New Jersey

Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn. • Kansas City, Mo. • Perryman, Md.

Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

ENGINEERING NEWS-RECORD

Vol. 161, No. 21 November 20, 1958

Number of copies printed this issue 83,398

CONTENTS

NATIONAL AFFAIRS

Construction Records to Topple 21
New Building Is Being Torn Down 23
Wind Topples Supermarket's Roof Arches 23
Cement vs Asphalt Is Controversy in Michigan .. 23
Do-It-Yourself Road Repairs 24
Four Firms Study Giant Hydro Plan 24
Talk Lively at Traffic Engineers' Meeting 24
Rock Mechanics: New Science Emerging 25
Army Builds a Giant Antenna 25
On the Monongahela: Dam Modernization ... 26
On the Ohio: Locks Near Completion 26
Speeding the Use of Welded Rails 27

FEATURES

Kariba Dam Harnesses Africa's Wild Zambezi ... 30
Lift-Slab Jacks Raise the Roof 39
Aluminum Shines in Alcoa Power Plant 40

INTERNATIONAL

Genoa Builds an Airport in the Sea 46

FIELD AND OFFICE

Mud Holds Deep Trench Walls 51
Combination Unit Speeds Drawing Reproduction 51
Cheaper Way to Line Small Pipe 52

RESEARCH

Truss Made of Steel and Prestressed Concrete .. 57
New IES Lighting Recommendations 57

NEW PRODUCTS

Needles Form Chipping Gun 67
Diesel Crawler Has Single Stick Shift 67
Horizontal Pump Works Inside Pipeline 67
Leveling Rod Is More Rigid, More Legible 67
Flexible Tubing Forms Ducts in Concrete 67
Gas-Burning Heater Delivers Fresh Air 68
Adjustable Anchor Aligns Steel Beams 68
Tractor-Loader Capacity More Than Doubled ... 70
High Lift Hydraulic Jacks Added to Line 70

MEN AND JOBS

Hardy Cross Honored by Engineers 73
Gen. Charles G. Holle Retires 73

BUSINESS AND FINANCE

Machinery Orders to Climb 103
States Study Prequalification Action 104
Two Boosts for Air Conditioning 106

LABOR

How to Keep the Right to Hire 109
Carpenters Threaten to Secede 110
Labor Unity Faces a Big Test 111
Workers Denied Tax Deduction 112
New Three-year Pacts Signed 112

Reader Comment 9
Calendar 12
Washington Observer 19
Legal 76
Unit Prices 81
Materials Prices 84
Construction Reports. 85
Statistics, Indexes .. 102
Editorials 124

Back Issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Semi-annual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

BOOM IN CHURCH BUILDING—Look for increased construction spending by religious groups. The United Presbyterian Church has borrowed $5 million to help finance 75 to 100 new churches a year for the next 10 years. And the Union of Orthodox Jewish Congregations expects to build a thousand synagogues between now and 1968. Orthodox Jews will also spend $250 million for day schools over the next 10 years.

CONCRETE VS STEEL—Some New York City engineers are betting that the Wilson Houses, a low-rent project, will have a steel frame. Alternate bids on steel and concrete frames for the project's three 20-story buildings will be taken late this winter or early spring. The last time the New York City Housing Authority took alternate bids on concrete and steel framing was about a decade ago. Concrete won and was given preference in subsequent designs. The odds now favor steel because the American Institute of Steel Construction is paying for the alternate design. Observers think this will be added incentive for steel fabricators to bid low.

HULA HOOPS HIT CONSTRUCTION—Dutch contractors are complaining that the hula hoop fad is interfering with construction. It's diverting plastic from piping.

ARGENTINES EYE RUSS EQUIPMENT—Watch for extensive Argentina purchase of Russian construction equipment, including excavators, cranes and heavy tractors. An Argentine trade delegation, which arranged a recent $100 million Soviet credit for purchase of Russian oil equipment, was impressed by favorable financial terms offered and quality of Soviet construction equipment.

BIGGEST LAGOON?—Everett, Wash., (pop. 40,000) may become the biggest U.S. city to treat its sewage by the lagoon method. Everett joins a growing number of municipalities that are sold on the economy of the shallow pond-sunlight-air treatment and have the necessary space.

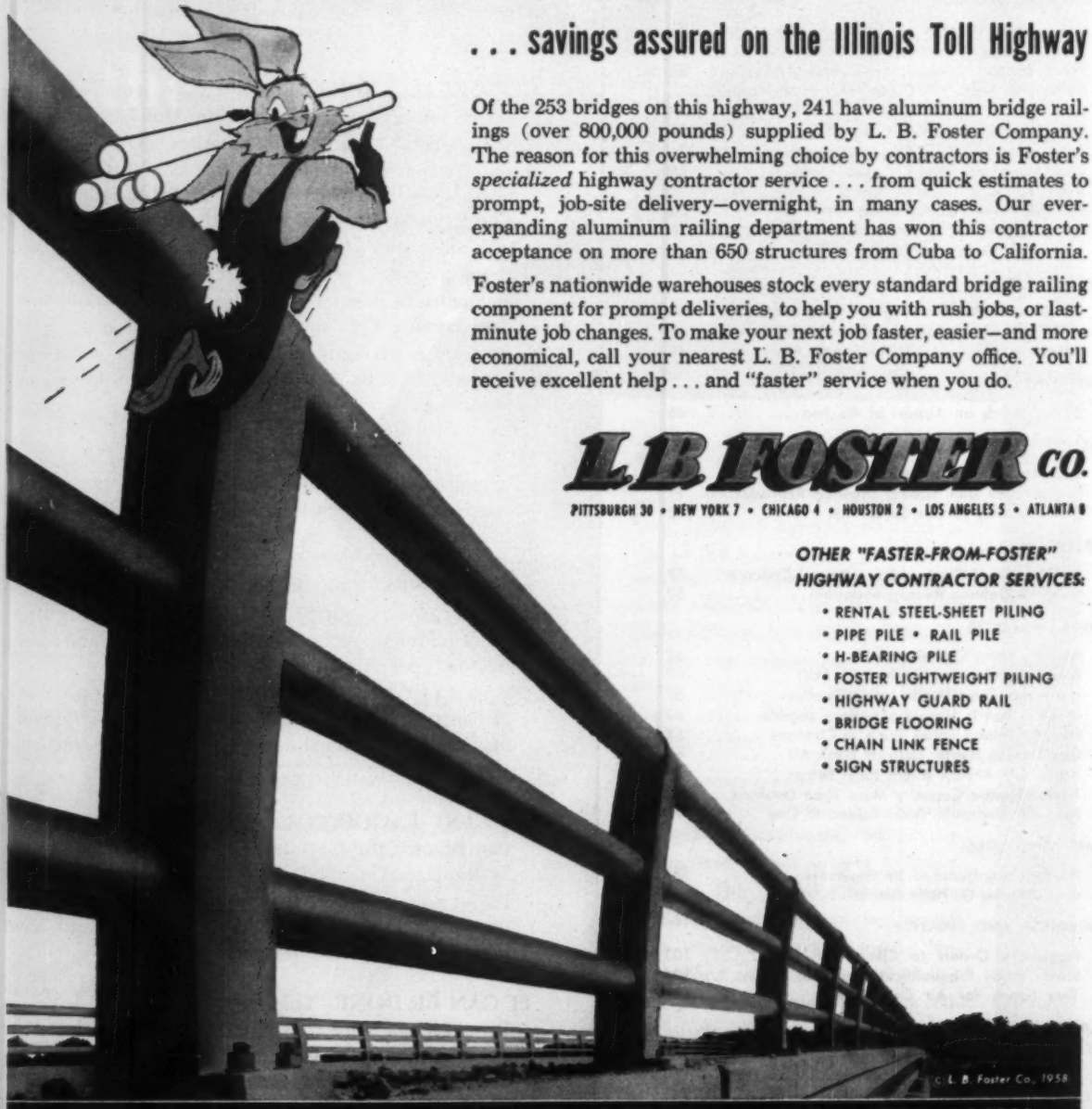
IT CAN BE DONE—That long-sought tunnel between Britain and France won't meet any great obstacles in the structure of the English Channel bottom. So says a channel study group in an interim report on geophysical investigations of the future construction site. The survey is to be used as a basis for an engineering study of design, construction technique and costs.

MORE MORTGAGE MONEY—Congress will make subsidizing of homebuilders one of the first orders of business when it convenes in January. It will probably authorize mortgage purchases at par by the Federal National Mortgage Association (Fannie Mae).

"FASTER FROM FOSTER"

28 miles of ALCOA ALUMINUM BRIDGE RAILING

. . . savings assured on the Illinois Toll Highway



Of the 253 bridges on this highway, 241 have aluminum bridge railings (over 800,000 pounds) supplied by L. B. Foster Company. The reason for this overwhelming choice by contractors is Foster's *specialized* highway contractor service . . . from quick estimates to prompt, job-site delivery—overnight, in many cases. Our ever-expanding aluminum railing department has won this contractor acceptance on more than 650 structures from Cuba to California.

Foster's nationwide warehouses stock every standard bridge railing component for prompt deliveries, to help you with rush jobs, or last-minute job changes. To make your next job faster, easier—and more economical, call your nearest L. B. Foster Company office. You'll receive excellent help . . . and "faster" service when you do.

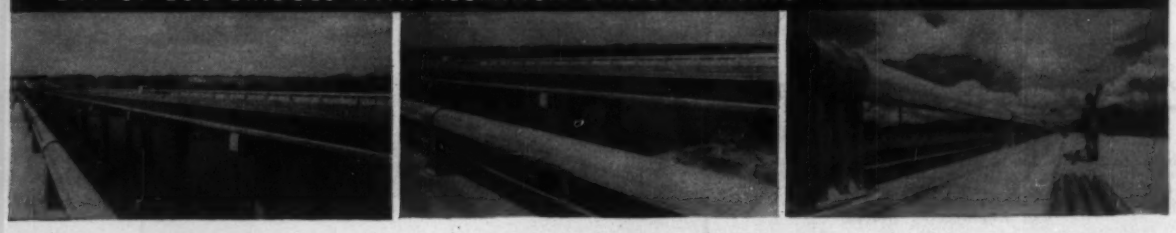
L. B. FOSTER CO.

PITTSBURGH 30 • NEW YORK 7 • CHICAGO 4 • HOUSTON 2 • LOS ANGELES 5 • ATLANTA 8

OTHER "FASTER-FROM-FOSTER" HIGHWAY CONTRACTOR SERVICES:

- RENTAL STEEL-SHEET PILING
- PIPE PILE • RAIL PILE
- H-BEARING PILE
- FOSTER LIGHTWEIGHT PILING
- HIGHWAY GUARD RAIL
- BRIDGE FLOORING
- CHAIN LINK FENCE
- SIGN STRUCTURES

241 OF 253 BRIDGES WITH ALUMINUM BRIDGE RAILING "FASTER-FROM-FOSTER"



WASHINGTON OBSERVER

- **White House to push gasoline tax hike**
- **Government sees slow rise in business**
- **Hearing near on runway pavements**
- **FHA mortgage discounts rising**

- **It's almost official now: The Eisenhower Administration plans to ask for a bigger gasoline tax to pay for highway construction.** Spending was increased —and the pay-as-you-go rule broken—earlier this year when Congress was enacting anti-recession legislation. Now, the Administration is laying down the line it plans to take: Either increase gasoline and diesel tax from its present 3 cents per gallon, or take a cutback in construction and delay completion date of the 41,000 mile net.

  Allocations to states for 1961 would be reduced by $1 billion if the increased revenue isn't voted. Washington experts are talking of a 1-cent or 1½-cent increase. This would boost the trust fund by $350 million to $500 million a year.

  Strategy being talked about: Boost the tax on fuel only, not on other user items such as tires, trucks, cars. Insiders say this is the way the tax boost can be voted with the least amount of balking by the taxpayers.

- **A rise in general business, but at a slow rate, is this week's forecast of top government economists.** The predictions were made at the annual Outlook Conference sponsored by the Department of Agriculture. The conference coincided with the annual construction forecast of the Departments of Commerce and Labor (see page 21).

  The slow rise in business is predicted because capital plant and equipment spending next year will go up only slightly.

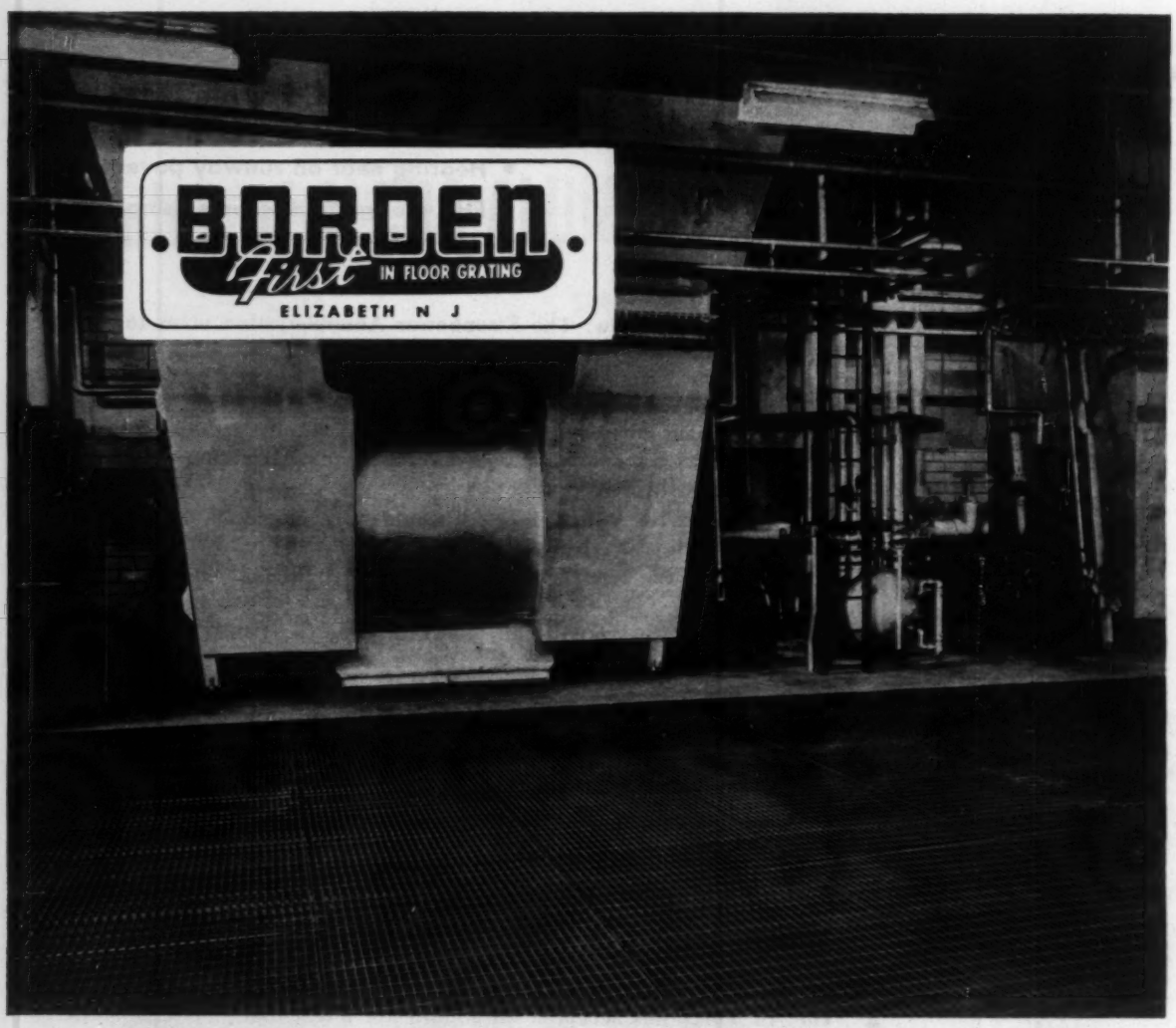
- **The Air Force has accepted the findings of a test that shows asphaltic concrete will stand up under heaviest bomber loads. But that doesn't mean it will switch its general preference from portland cement concrete to asphalt.**

  The asphalt design was tested by the Army Engineers at the Columbus, Miss., Air Force Base during September. Asphalt interests and the House Armed Services Committee have been trying to accumulate information to use in judging the Air Force's general preference for concrete.

  A committee hearing has been scheduled for December 2 to hear military men and industry officials. The report will be released then. Observers expect a sharp difference of opinion at the hearing—despite findings that indicate asphalt can do the job.

- **Discounts on FHA mortgages are rising sharply, reflecting the upward trend of business and a continued tightening in the money market.** Latest figures show that the average price of a high-grade FHA mortgage—5¼%, 10% down, 25-year—dropped from $99.10 per $100 of debt on September 1, to $97.50 on November 1.

  Democrats in Congress will use such figures to bolster their case for more federal aid to housing if starts are to be kept at the level they think necessary. It took emergency legislation to boost this year's starts to an estimated 1.1 million. Democrats think that should be a minimum every year.



BORDEN MANUFACTURES EVERY TYPE FLOOR GRATING

IN FERROUS AND NON-FERROUS METALS

- **EASY TO INSTALL** — engineered in conveniently sized units for easy installation.
- **EXTRA STRONG** — reinforced, designed with maximum safety factor.
- **LIGHT WEIGHT** — approximately 80% open, reduces dead weight, allows greater live load.
- **SELF-CLEANING** — creates greater safety, economy of maintenance, no sweeping or washing required.

Write for complete
information on BORDEN
All/Weld, Pressure Locked, and Riveted Floor
Gratings in this FREE 8-page catalog

BORDEN METAL PRODUCTS CO.

815 Green Lane Elizabeth 2-6410 Elizabeth, N. J.

Plants At: UNION, N. J., LEEDS, ALA.
CONROE, TEX., BEETON, ONT.

BORDEN METAL PRODUCTS CO.

Gentlemen:

Please send me BORDEN Catalog

NAME .....

TITLE .....

COMPANY NAME .....

ST. AND NO. .....

CITY AND STATE .....

Construction's Biggest Decade: 1949-1959*

TOTAL PRIVATE	Up 98%	TOTAL PUBLIC	Up 167%
Housing	Up 107%	Housing	Up 213%
Industrial	Up 114%	Industrial (A-power & ordnance)	Up 112%
Office buildings & warehouses	Up 492%	Educational	Up 221%
Stores, restaurants, garages	Up 145%	Hospitals & institutional	Down 0.4%
Religious	Up 164%	Administrative & service	Up 390%
Educational	Up 123%	Military facilities	Up 922%
Hospitals & institutional	Up 197%	Highways	Up 182%
Social & recreational	Up 60%	Sewers	Up 168%
Farm construction	Up 8%	Water	Up 115%
Railroad	Down 8%	Public service enterprises	Up 275%
Telephone & telegraph	Up 78%	Conservation & development[1]	Up 127%
Electric, gas, water utility	Up 69%		

*Based on dollar volume rise of new construction put in place—U.S. Depts. Commerce & Labor. 1958-59 are estimates.
[1]Includes Corps of Engineers, Bureau of Reclamation & TVA

Total Construction—Public & Private . . . Up 116%

Construction Records to Topple

In 1959 spending for new construction put in place will top $50 billion for the first time in history. That's the government's prediction.

The U. S. Departments of Labor and Commerce expect outlays to hit a record $52.3 billion. That's 7% above this year's estimated total of $48.8 billion (see table next page).

Another $18 billion can be added for maintenance and repairs in 1959.

The ENR maintenance and repair estimate pushes the entire construction market to more than $70 billion. This too is a "first."

On this basis, construction of all types would account for slightly more than 15% of the country's total output of goods and services as measured by Gross National Product. According to the McGraw-Hill Department of Economics, GNP in 1959 will be $465 billion.

Next year's total construction market will top 1958's by $3 billion. It will be 30% larger than the 1950 total construction market.

For the 10-year period from 1949 through 1959, total construction volume will have gone up 116% (see table above). The joint Labor and Commerce figures showed $24.2 billion worth of construction put in place in 1949.

All but two construction markets will have shown increases for the 10-year period. Most of the expanding markets will have soared more than 100%. One—military facilities—will have rocketed 922%.

The two markets expected to be lower are railroads, down 8%, and public hospitals and institutions, down only 0.4%.

Second largest increase in the public construction field will be in administrative and service buildings—up 390%.

The single largest increase in private construction during the 10-year period will be buildings and warehouses. By the end of next year, predicted growth is 492%.

• **Switch coming**—The 1959 forecast from the Commerce and Labor Departments points to a reversal of 1958's 1% decline in estimated spending for private construction. Next year's private outlays are expected to be $35.2 billion. This will be 4% above 1958's $33.8 billion.

Sharpest increase will be in housing, up 13%. Housing starts in 1959 are forecast at 1,150,000.

Other increases in private work are also predicted for next year. They are: stores-restaurants-garages, 10%; religious, 10%; schools, 6%; telephone and telegraph facilities, 6%; and railroads, 8%.

But some spending declines are also predicted. They are: industrial building, down 15%; office buildings and warehouses, down 4%; electric and gas utilities, down 7%.

• **Sharpest rise**—The Commerce-Labor prediction for public works spending shows a sharp rise in the annual rate of increase next year.

Total outlays are placed at $17.1 billion. This is a 14% jump over 1958, and more than double the 1957-58 annual increase of 6%. It will be the thirteenth consecutive annual jump in total estimated spending for new public construction.

By 1959 this rise will have swelled the construction market by more than seven times its value in 1946 and nearly two-and-one-half times that of 1950. Public works spending in 1959 will account for 33% of the total new con-

Here's the 1958-59 Market Spotlight[1]

(in millions of dollars)

Type of construction	1957	1958[2] Preliminary	1959 Preliminary	% Change '57 to '58	% Change '58 to '59
TOTAL NEW CONSTRUCTION	**48,115**	**48,800**	**52,300**	**+ 1**	**+ 7**
Private	**33,988**	**33,800**	**35,200**	**– 1**	**+ 4**
Housing (nonfarm)	17,019	17,700	19,500	+ 4	+10
New housing	12,615	13,300	15,000	+ 5	+13
Additions, alterations	3,903	3,780	3,880	– 3	+ 3
Nonhousekeeping	501	620	620	+24	0
Nonresidential	9,556	8,730	8,500	– 9	– 3
Industrial	3,557	2,460	2,080	–31	–15
Commercial	3,564	3,550	3,630	[3]	+ 2
Office Bldgs, whs	1,893	1,980	1,900	+ 5	– 4
Stores, restr., garages	1,671	1,570	1,730	– 6	+10
Other nonresidential	2,435	2,720	2,790	+12	+ 3
Religious	868	865	950	[3]	+10
Educational	525	565	600	+ 8	+ 6
Hospitals, institutional	525	605	600	+15	– 1
Social, recreational	311	425	420	+37	– 1
Miscellaneous	206	260	220	+26	–15
Farm construction	1,590	1,600	1,600	+ 1	0
Public utilities	5,624	5,375	5,400	– 1	– 3
Railroad	406	300	325	–26	+ 8
Telephone, telegraph	1,068	900	950	–16	+ 6
Electric light and power	2,100	2,250	2,100	+ 7	– 7
Gas	1,650	1,750	1,625	+ 6	– 7
Other public utilities	400	375	400	– 6	+ 7
All other private	199	195	200	– 2	+ 3
Public	**14,127**	**15,000**	**17,100**	**+ 6**	**+14**
Housing	506	830	1,125	+64	+36
Nonresidential	4,503	4,625	5,075	+ 3	+10
Industrial	473	370	375	–22	+ 1
Educational	2,825	2,880	3,000	+ 2	+ 4
Hospital, institutional	350	400	475	+14	+19
Administrative, service	439	530	750	+21	+42
Other nonresidential	416	445	475	+ 7	+ 7
Military facilities	1,322	1,210	1,400	– 8	+16
Highways	4,971	5,350	6,000	+ 8	+12
Sewer, water systems	1,344	1,390	1,520	+ 3	+ 9
Sewer	781	840	950	+ 8	+13
Water	563	550	570	– 2	+ 4
Public service[4]	393	450	690	+15	+53
Conservation, development[5]	971	1,000	1,080	+ 3	+ 8
All other public	117	145	210	+24	+45

[1] New construction put in place, U. S. Depts. Commerce and Labor
[2] Last two months estimated
[3] Less than ½ of 1%
[4] Includes all state & local power projects
[5] Includes Corps of Engineers, Bureau of Reclamation & TVA

struction market, according to the forecast. In 1950, public construction was only 17% of the total market.

Outlays for every major type of public works next year are expected to top those of 1958.

Major reasons are jumps in these categories: public housing, up 36%, reflecting Capehart housing contract awards during 1958; administrative and service buildings, up 42%; schools, up 4%; sewerage, up 13%; and public service enterprises, up 53%.

The last category includes dams, airports and power plants—particularly New York State's big Niagara Power Project.

• **Comparing predictions**—The 7% rise in estimated spending forecast for next year is greater than the 3% 1959 rise in heavy construction contracts predicted by ENR in August. Here's why:

Big increases in next year's anticipated spending reflect increases in contract awards during 1958, as well as 1959. Total awards so far this year are up 6% above last year.

Most significant example of this is in public works. Contracts will rise 5% next year, according to ENR's forecast. The Commerce-Labor estimate shows a 14% jump in spending.

The difference is that the 1959 spending estimates for public works bank heavily on the contracts let in 1958. Some work, such as large dams let in 1957 or even earlier, also shows up in the '59 government spending estimate.

The big increase in 1959 public works spending greatly reflects the 19% jump in public heavy construction contracts reported by ENR during the current year.

Private construction also shows a difference in the outlook. ENR forecast a 1% rise in 1959. Commerce-Labor estimate of private spending in 1959 shows a rise of 4%. This smaller difference between the two predictions results partly from the greater speed in putting private construction in place. Generally, the lag between contract award and the start of private work is short. This isn't so with public works.

Also, the put-in-place estimates cover small projects, such as houses, built one or a few at a time. Only mass housing developments are included in ENR contract figures.

Small commercial or other nonresidential buildings are also screened out of the ENR heavy construction totals. These smaller projects presumably make up much of the difference between the ENR private heavy construction contract total and the Commerce-Labor estimates of private construction put in place.

• **Accuracy questioned**—There is also a problem of accuracy in the put-in-place figures (ENR Aug. 28, p. 81).

The government itself frequently revises its figures. It has even changed the put-in-place total for 1957.

Early in 1958 the 1957 total was reported as $47,255 million; in May 1958, it was revised up to $48,492 million. Now it's $48,115 million.

Government statisticians recognize the problem: Lack of appropriations from Congress needed to overhaul the federal construction statistics program.

Corps Predicts Long-Range Great Lakes Water Levels

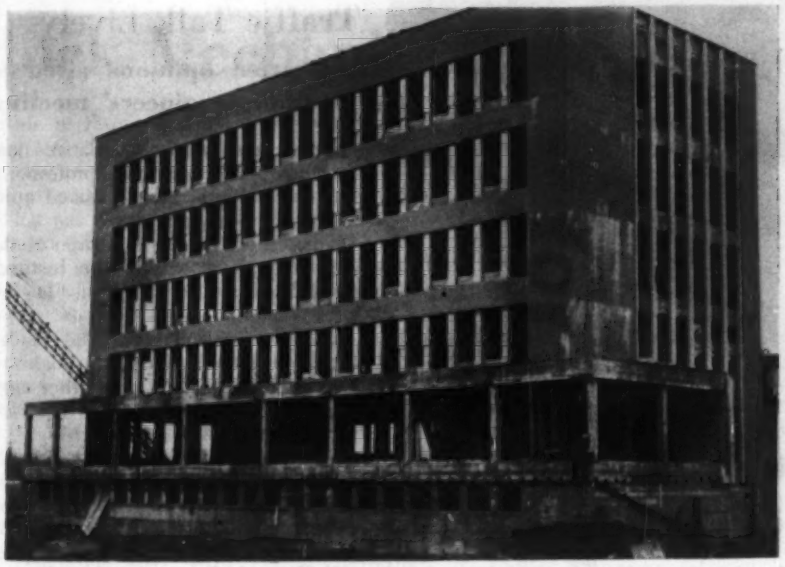
The Army's Corps of Engineers is preparing now for the increase of Great Lakes traffic expected after completion of the St. Lawrence Seaway.

The Corps has taken these steps:

• It is forecasting water levels of the Great Lakes six months in advance.

• It is issuing new navigation charts for deeper draft vessels.

The new monthly forecasting service includes all the Great Lakes and Lake St. Clair. It will be a graphical presentation showing the lake-level trend for the past year. It will also indicate the 98-year averages, all-time highs and lows and the low-water reference levels used on lake survey charts. The forecasts indicate the trend for average conditions.



This new building looks OK but . . .

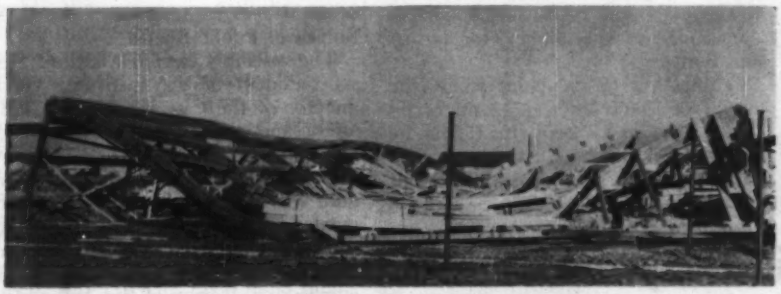
It's Being Torn Down

Demolition crews are taking down a 5-story reinforced concrete office building that had just been completed at Ville St. Pierre, near Montreal, Que.

Though observers report that the demolition was prompted by foundation troubles, those connected with the project refuse to disclose what went wrong.

Montreal engineers say an attempt was made to save the building by jacking to correct a tilt. But the efforts were abandoned.

The blue-brick building was built for Canadian Car Co., Ltd. Barott, Marshall, Merrett and Barott, are the architects. E. G. M. Cape & Co. is the general contractor. The pile foundation for the building was constructed by Franki of Canada, Ltd.



This One Blew Down

A freak gust of wind last week toppled the laminated timber roof arches just erected for a supermarket in Hicksville, N. Y.

The builder had put up five arches spanning 100 ft across a market floor. All the purlins were bolted in place. The arches rested on 10-ft-high lally columns at one side of the span and on steel H-columns on the other side.

The builder rigged three steel cables, ½-in. in diameter, from each end arch to deadmen outside the building for added stability until concrete block end walls could be completed.

A crew also had hoisted bundles of 2-in.-thick wood plank to the tops of the arches to get ready for sheathing the roof.

The builder reports that a gust of wind started the arches swaying when workers were shifting one of the guy wires. The two other guys at that end snapped and the roof framing fell to the ground.

The market is being built for Penn Fruit Co. by Mardan Construction Corp., New York City. The arches were supplied by Timber Structures, Inc., Portland, Ore.

Cement vs Asphalt

Michigan highway plans draw cement company fire

Michigan's highway commissioner and some of the portland cement companies in the state are engaging in a much publicized controversy over the State Highway Department's decision to use asphaltic concrete on some of its main roads.

The state's plan for its five-year, 978-mile interstate and arterial road program calls for portland cement on 786 miles and asphalt on 192 miles.

Commissioner John C. Mackie says, "Decisions on type of pavement were reached after a detailed mile-by-mile engineering committee study which took into consideration costs, source of aggregate, source of cement, borrow, soil conditions and ultimate strengths." He states that estimates show "use of asphaltic concrete as planned will save almost $3 million." Cement men disagree with this view.

The cement companies charge that Mr. Mackie is playing politics. (He is one of the nation's two elected highway commissioners. Others are all appointed.)

Cement companies are using newspaper ads to express their views. Some newspapers are published along the routes of the proposed asphalt roads. They emphasize advantages of using concrete.

Other ads have been placed in newspapers in towns where cement is manufactured. They warn against loss of jobs and urge public protests to the governor.

These ads brought objections from Gov. G. Mennen Williams. He says they are misleading because the state will use nearly three times as much cement in the next five years as it did in the last five. Cement people contest this.

Part of the picture is Michigan's cement producing capacity. A cement company official says it's now 28 million bbl annually and will soon become 33 million. Last year production was about 21 million bbl.

A cement spokesman says, "They're covering Michigan with asphalt." And cement men argue that two-thirds of the asphalt comes from out-of-state.

Not so, says an asphalt spokesman. "75% of the asphalt used this year came from within the state."

Use of asphalt for construction and maintenance of state roads in Michigan is expected to rise about 50% this year. Last year more than five million bbl were used.

Mr. Mackie was elected commissioner in April 1957. He is a civil engineer.

Do-It-Yourself Road Repairs

1. "Working" Mothers Widen Oregon Road

Some worried mothers in Scappoose, Ore., decided to take matters (and picks and shovels) in their own hands to eliminate a road hazard they felt endangered their children.

Siericks Road is very narrow, but it's used by school busses and long lumber trucks.

At the point pictured above it has no shoulder, though it makes a blind turn at the top of a 50-ft drop. Several automobiles have been forced over the edge into the ravine below while trying to avoid oncoming vehicles that suddenly appeared from the other side of the bend.

When local authorities delayed action on requests to make the road safe, mothers of school bus passengers went to work.

2. Louisville Homeowners Patch Street

A running battle between Louisville, Ky., authorities and residents of one section of the city has resulted in homegrown street repairs.

The city wants to rebuild a local street at the expense of the adjacent property owners. Because of the cost, the taxpayers just want the street patched.

The city has refused to settle for a patch job, so the homeowners are filling holes themselves. Some officials claim this isn't legal. But so far, no one has tried to stop the do-it-yourself citizens determined to save money, car springs and tempers.

Things got to the point where the mayor of Louisville said he might fill a few holes in his own street. But he changed his mind. "Just as soon as I said that, I was sorry. I could have bit off my tongue."

Study Big Canadian Hydro Plan

Four Canadian and British companies have formed a partnership to continue studies of a proposed 6-million kilowatt hydroelectric development on the Peace River in northeast British Columbia.

First studies toward development of the vast waterpower and metals complex were started about two years ago by Swedish multimillionaire Axel Wenner-Gren. Preliminary findings reportedly have shown the project to be practical. Objective of the new studies will be to confirm the earlier conclusions.

Investment figures mentioned for the project have ranged up to $1 billion in the past (ENR Nov. 7, 1957, p. 27). The latest cost reported is $500-600 million.

Companies making up the partnership are Peace River Power Development Co., Ltd., newly formed to represent the Wenner-Gren interest in B. C.; Power Securities Corp., Ltd., of England; Associated Electrical Industries of England; and Western Development and Power, Ltd., a B. C. Electric Co. subsidiary. The government-owned B. C. Power Commission has been invited to join the group.

If the new studies are completed satisfactorily, the group will seek financing for construction of a 700-ft-high dam, purchase of generating units and erection of transmission lines.

Traffic Talk Lively

Varied opinions aired at traffic engineers' meeting

Traffic engineering—a relative newcomer to the engineering profession—still has within it the devirsified opinions of a growing science.

Some proof of this was given at the 28th annual meeting of the Institute of Traffic Engineers at Miami, Fla., last week.

One speaker predicted and lauded the coming of the electronic highway. He met disagreement from other engineers who bemoaned a trend they felt would take the fun out of driving.

Another pointed out the desirability of the trained specialist. "Just because they're elected by the people, city councilmen somehow believe they automatically become experts for the people," said Henry A. Barnes, Baltimore's commissioner of transit and traffic.

But Willard F. Babcock, North Carolina's first director of highways noted: "There is a great need in urban areas for a generalist with a broad understanding of the transportation problem to fill the void between the traffic operational specialist and the urban planner. . . ."

Top men of the growing field participated in the give and take of the lively sessions. These included T. T. Wiley, commissioner of traffic for New York City; Alger F. Malo, director of the Detroit department of streets and traffic; and O. K. Norman, deputy commissioner for research of the U. S. Bureau of Public Roads.

The assembly elected Matthew Sielski president of the institute. He is director of the Chicago Motor Club's safety and traffic engineering department.

D. Grant Mickle received the Theodore M. Matson Memorial Award for outstanding contributions to the advancement of the science of traffic engineering. He is director of the traffic engineering division of the Automotive Safety Foundation, Washington, D. C.

Final Relocation Award Let for Noxon Rapids Dam

The last relocation job is now under contract for Noxon Rapids Dam, Washington Water Power Co.'s $87 million hydroelectric project on the Clark Fork River in western Montana.

The dam is 75% complete. Power production starts next August.

Ebasco Services, Inc., of New York City, designed the 160 ft high earthfill and concrete gravity structure. Morrison-Knudsen Co., Inc., Boise, Idaho, is the general contractor (ENR Dec. 5, 1957, p. 60).

Rock Mechanics: New Science Emerging

Rule of thumb procedures for handling rock excavation problems are on the way out. Factual information on rock properties will replace them.

That was the consensus of those who attended this month's joint meeting in St. Louis of the Engineering Geology Division of the Geological Society of America and the Soil Mechanics Division of the American Society of Civil Engineers. It was held during the 71st annual meeting of the Geological Society of America.

One paper summarizing theoretical rock studies by the U. S. Bureau of Reclamation especially emphasized the advance of the science of rock mechanics. It used Glen Canyon Dam studies as its vivid example. The paper was prepared by R. W. Judd of the commissioner's office in Denver. It pointed out that test drilling into rock of the reclamation dam's abutments has been carried out along lines of calculated reaction forces. This is done so rock tests on core samples in the lab will simulate exactly the actual stress conditions to which the rock will be subjected.

A. T. Hogg, of the Hydro-Electric Power Commission of Ontario, presented the first published information from extensive rock studies made by his organization during construction of the Sir Adam Beck Project No. 2, at Niagara Falls, Ont. He pointed out how valuable this experience will be now that the corresponding New York State power development has started on the U. S. side of the Niagara River.

Mr. Hogg described accurate measuring devices used by Ontario Hydro researchers to observe deformations of the rock in 51-ft-dia tunnels and to observe the actual changes in dimension of large open cuts.

Inward movement of the rock in tunnels and cuts was recorded at about an inch. But a striking decrease in such movement occurred in the second tunnel, which was parallel to the first but excavated somewhat later.

Plotting of these movements permitted predictions to be made with certainty that all the structures are well able to withstand any future changes in stress caused by the rock movements.

• **Under 1,000 ft of granite**—From Australia came a paper by D. G. Moye, chief geologist for the Snowy Mountain Project. He described the unusually extensive rock investigations made in connection with the T-1 underground power station of this immense project on the Tumut River. The main machine hall of this station is 306 ft long, 77 ft wide and 104 ft in height. But the tunnel is famous largely because it is more than 1,000 ft below ground surface in solid granite.

Even its exact location underground was determined on the basis of careful preliminary rock studies. These included driving a pilot tunnel to the prospective location. The pilot tunnel was later used for cables.

Initial rock stresses were computed from measurements in the initial study, and the large powerhouse was designed accordingly. Stresses were found to be higher than could be caused by the weight of the overlying rock alone.

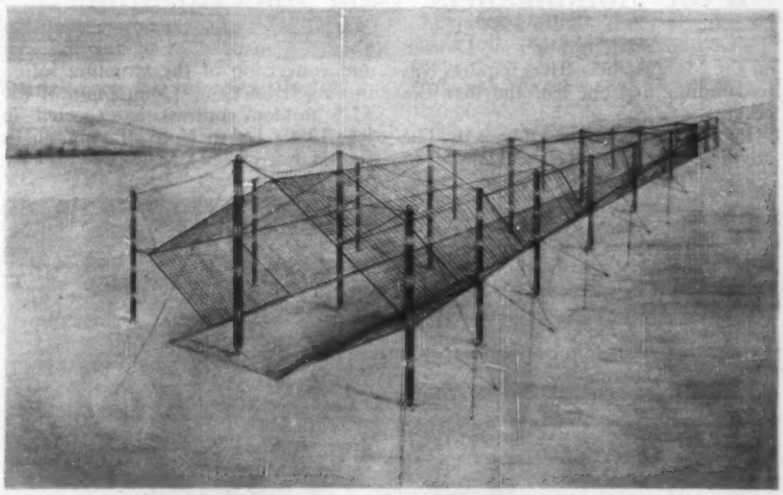
Photo-elastic research was carried out to determine the stresses to be expected in the large excavation, and the shape of the hall was determined with help of this information. The successful performance of all T-1 excavation has been aided by the wide and careful use of rock bolts.

• **Under the Mackinac Bridge**—J. S. Rosenau gave an account of the geological studies made for the foundations of the Mackinac Straits Bridge. He showed how preliminary investigations resulted in shifting one of the main piers by 30 ft and contributed new information to the complex Pleistocene geology of this area.

A portable rock mechanics laboratory used by the California State Department of Water Resources was described by C. W. McClure. Land subsidence due to the withdrawal of fluids, described by G. H. Davies of the U. S. Geological Survey, was another contribution from California.

The conferees received copies of the papers before the discussions. A limited number of these preprints are available on application to the Publication Distribution Office, U. S. Bureau of Reclamation, Denver, Colo.

R. F. Legget was named chairman of the Engineering Geology Division of GSA. He is director of building research for Canada's National Research Council.



Army Builds Giant Antenna

A giant horn-shaped radio-receiving antenna is under construction at the Army Signal Corps Station, La Plata, Md. The structure will be 844 ft long, 506 ft wide and 253 ft high. It will cover 16.8 acres of ground.

If tests with the new antenna are successful, it's expected the Army will use them throughout its communication setup.

The supporting structure consists of 18 steel towers of varying height and cross-sectional area as well as primary catenaries, stays and hangers and secondary cables.

The reflecting surfaces—wire grid panels—will be fabricated at the site; some 21,000 lb will go into the antenna. The structure is designed to withstand a 100 mph wind.

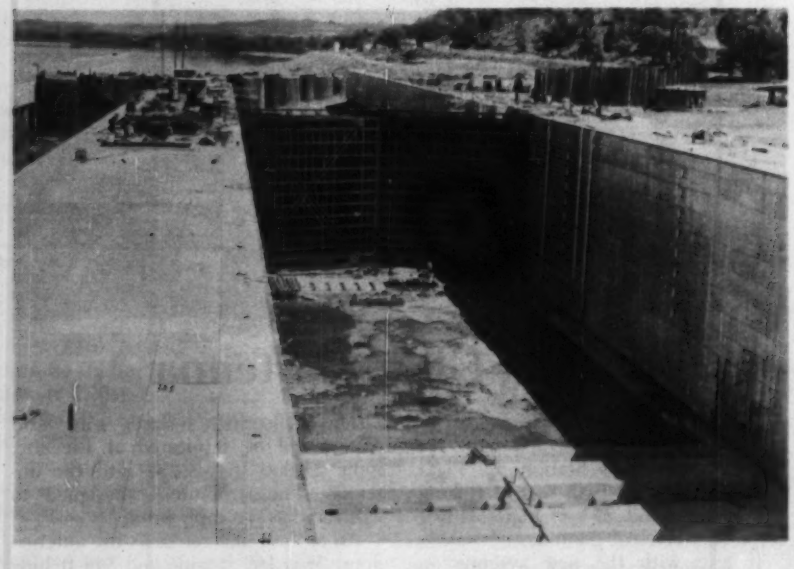
An asphalt mat serves as the antenna floor. It is 169 ft wide and 844 ft long and tapers to a 40-ft width.

It's called a "tapered aperture horn antenna" and will cost about $600,000. It was designed by Development Engineering Corp., Leesburg, Va. John F. Beasley of Muskogee, Okla., is the contractor. The fabricator is Truscon Corp., Youngstown, Ohio.

On the Monongahela: Dam Modernization

Two-step modernization of Dam 8 on the Monongahela River requires cofferdamming first one half and then the other.

Pool level is being raised by 4 ft. The original crest has been cut away to allow for installation of taintor gates and conversion of the structure into a movable-crest dam. Completion of the $2.5 million contract is expected in late 1959. Dravo Corp., Pittsburgh, is the contractor.



On the Ohio: Locks Near Completion

Markland Locks on the Ohio River are almost finished. They are part of a series of locks under construction in the Ohio River modernization program to increase the length of barge tows and reduce time in passing the locks (ENR April 24, p. 28). Concrete laterals in foreground deliver and empty water to change level in the lock. It's another Dravo job (see above).

U.S.-Euratom Pact Spurs Europe's A-Power Growth

A million kilowatts of nuclear power in Western Europe in the next five to seven years--that's the goal of a joint effort agreed on last week by the U. S. and the six-nation European Atomic Energy Community.

U. S. participation is part of this country's policy of encouragement for Western Europe's economic integration. Euratom nations are Italy, France, Germany, Belgium, Netherlands and Luxemburg.

Capital cost of the new program, exclusive of fuel, is expected to be about $350 million. U. S. long-term credits will cover up to $135 million.

This country also guarantees the cost and integrity of fuel elements--up to $90 million for a 10-year operation period. The U. S. also guarantees a market for the plutonium by-product during the same period.

Reactors would be types developed in the U. S.

Hydraulic Studies Show Gorge High Diversion OK

The proposed plan for diverting the Skagit River for second-stage construction of the Gorge High Dam for Seattle City Light has been found adequate in studies by the University of Washington's hydraulics laboratory.

The studies are being made on a 1-to-150 scale model of a 1,300-ft-long section of the river, duplicating the present diversion dam and first-stage construction of the Gorge High Dam.

Water conditions on the river are simulated by sending water over the model of the present dam and through the proposed diversion channel to determine the elevation of water surface, velocity, and the scouring effect on the wall and floor of the channel.

The dam originally was scheduled for completion next February, but an 837-day extension has been requested by the Saving Corp. of Boston, Mass., co-contractor with Merritt-Chapman & Scott of New York City (ENR Sept. 11, p. 17).

Milwaukee Judge Stays Iron-Pipe Sewer Rule

A circuit judge in Milwaukee, Wis., has temporarily barred enforcement of a new rule requiring heavy cast iron pipe for house connections to sewers.

The Milwaukee and Metropolitan Sewerage Commissions had set November 1 as the effective date of the new regulation, but five manufacturers of bituminous fiber pipe asked an injunction on the grounds that the edict favored one product and one type of manufacturer.

A welding process imported from France may be responsible for . . .

Speeding the Use of Welded Rails

A new compound for fusion welding now being tested by the Chesapeake and Ohio Railway Co. may give impetus to the use of jointless track.

A French import, the material is used in a process called Alumino-Thermique rail welding. The C&O is the first U. S. railroad to try it.

The process is similar to the older, though not too frequently used, Thermit welding (ENR Aug. 31, 1939, p. 58). But the new process has certain advantages, its supporters claim.

The advantages cited are reportedly based on its European use. They are sound welds, smooth joints (without "dishing" of rail ends), speed, economy and simplicity.

In the operation, joint bolts are removed. A simple mold is made of a special Tennessee sand, and the railends are preheated under close control. A powder, whose formula is secret, is then melted and automatically injected in the joint space. When the rails cool, the form is removed and the weld is then ground down to leave a perfectly smooth surface.

While C&O representatives are reluctant to pass judgment on the method's long-range effectiveness, they are pleased with its potential. They hope the process may make it practical to weld joints in existing short-length track.

In recent years there has been a definite switch by U. S. railroads to the jointless rail.

Here's why: The cost of maintaining joints runs as high as $900 per mile each year; joints are hard on wheels; and noise is hard on passengers.

Half the lines in this country have already made some use of jointless track. Within five years, this figure is expected to be 75%.

Up to now, however, the change-over has come only when rails are replaced.

Since rails last about 25 years, the switch to jointless track will be a long process unless a rapid, economical and satisfactory means of welding the joints on existing track is found.

If the Alumino-Thermique process works out, it may even effect a change in the methods now being used for placement of new jointless track. These rails are now shop fabricated in lengths of 1,000 ft or more. Transportation and placement of these lengths are somewhat cumbersome operations. A suitable method of field welding might permit a return to shorter, more easily managed rail lengths.

State Road Bureau Liable For Land It Didn't Touch

Indiana's Supreme Court has ruled owners may be entitled to damages for property not taken by the state for highway construction.

The decision came in a test case brought by Gieger and Peters, Inc., a steel fabricating company in Indianapolis.

The company sued the state for $1 million damages on grounds that the new $8.2 million Madison Avenue Expressway isolated its plant, cutting off access and blocking transportation facilities.

The state refused to pay damages, claiming it had touched none of the plant's land. The Supreme Court unanimously ruled that it is possible to take property without actually touching it. The court recognized a property owner's right for compensation when the value of his land is damaged, even though there is no physical confiscation of the property.

Group Wants to Irrigate Arizona Indian Reservation

An organization of private interests plans to spend $25.8 million for development of irrigation works on the Colorado River Indian Reservation at Parker, Ariz.

The Ucan Corp., Utah, would construct sufficient works to put water on all of the reservation's remaining 60,000 irrigable acres.

The tribes would get one-third of the acreage. The remaining land would be used by the company for 25 years.

If the Department of the Interior approves the plan, Ucan will raise money through a bond issue and form a public irrigation district. The department last year approved a similar plan by another group. But that fell through because a performance bond was not posted.

Turnpike Improvements Asked of Government

The Pennsylvania Turnpike Commission wants the federal government to pay for truck creeper lanes and widening of tunnels on the turnpike.

Joseph J. Lawler, vice-chairman of the commission, says that the federal government should assume the cost because 359 miles of the turnpike are included in the interstate highway system.

Federal payments of these costs would also speed retirement of bonds, according to Mr. Lawler.

The 359 miles in the interstate system run from the Ohio State line to the Delaware River Bridge.

BRILLIANT PERFORMANCE

T-3 PRECISION THEODOLITE

Yes, brilliant performance based on inspired design and most scrupulous Swiss craftsmanship throughout the instrument and its accessories.

The Wild T-3 is an instrument that holds unchallenged supremacy in its class for accuracy, versatility, and maintenance-free reliability in a broad range of work requirements.

Complete data on the Wild T-3 will be sent on request.

Full Factory Services

WILD HEERBRUGG INSTRUMENTS, INC.

MAIN AT COVERT STREET, PORT WASHINGTON, NEW YORK • PORT WASHINGTON 7-4843

Buffalo Gets Its First Skyscraper in 30 Years

The walls are up on the 20-story Tishman Building under construction in Buffalo, N. Y. This is the first skyscraper to be erected there in over 30 years (ENR March 28, 1957, p. 27).

Its curtain-wall exterior consists of gray-tinted glass spandrels and gray-tinted, glare-reducing, fixed windows, with aluminum window frames and vertical strips. Column covers are black porcelain-enameled steel.

The facade's 7 x 11-ft panels are secured to the building with galvanized iron clip angles and stainless steel bolts. One set of clips is embedded in the reinforced concrete framework of the structure; another set is attached to the panels. Bolts through both sets of clips secure the panels to the framework.

Insulation is an integral part of the facade assembly. The insulation and vapor barriers are located immediately behind the opaque glass panels.

Removable faces on the narrow insulated panels between the windows give access to utility piping.

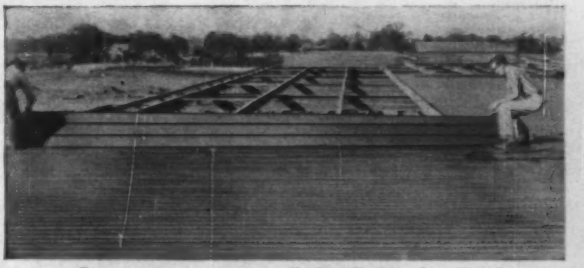
The office building will contain about 165,000 sq ft of rentable floor space. Completion is scheduled for February 1959. Emery Roth and Sons, New York City, are the architects. Owner-builder is Tishman Realty & Construction Co., Inc., New York City.

Wheeling Tri-Rib Steel Roof Deck is designed in accordance with specifications adopted by A.I.S.I. Light Gauge Cold-Formed Steel Design Manual, 1956 Edition.

4½ acres of Wheeling Tri-Rib Roof Deck used on new Corning Glass Works Plant

Just as Corning Glass Works, other progressive companies all over America are getting the strong, economical, long-lasting roofs they need with Wheeling Tri-Rib Roof Deck.

That's because Tri-Rib Roof Deck is made of Wheeling Cop-R-Loy® Steel – the famous controlled copper-bearing steel that actual tests prove lasts up to twice as long as ordinary steel when exposed to atmospheric corrosion! What's more, Tri-Rib saves time because it's easy to handle and easy to erect . . . saves money because it's so light and strong that it requires shallower footings, fewer and lighter columns as well as lighter structural supports throughout the entire building. In addition, Tri-Rib eliminates subpurlins needed with so many other types of roof construction.



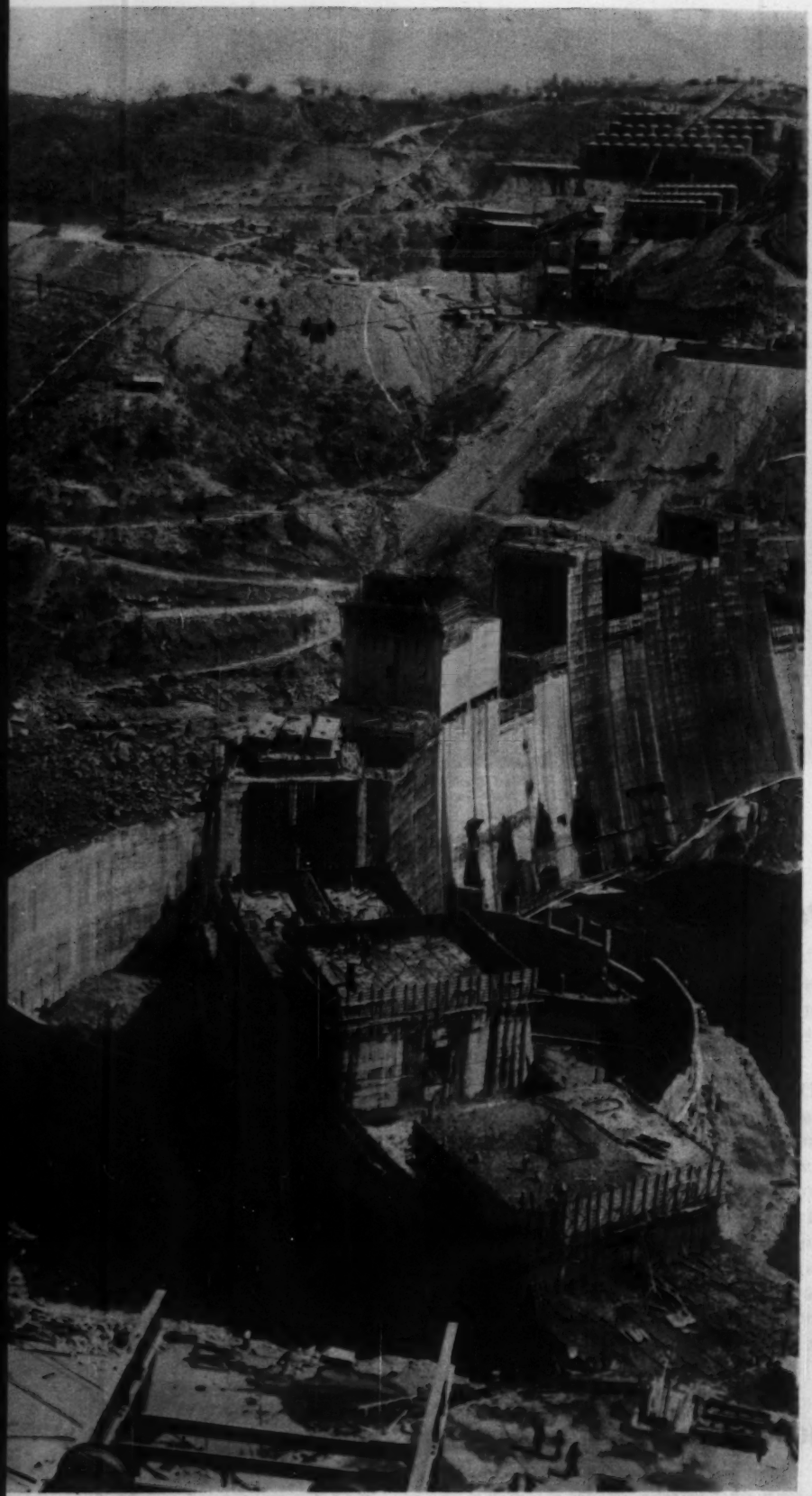
Because two men can easily handle long lengths of Wheeling Tri-Rib Roof Deck, it goes on with amazing speed.

Why not find out for yourself. See our catalog in Sweets, or contact your nearest Wheeling warehouse or sales office. Wheeling Corrugating Company, Wheeling, West Virginia.

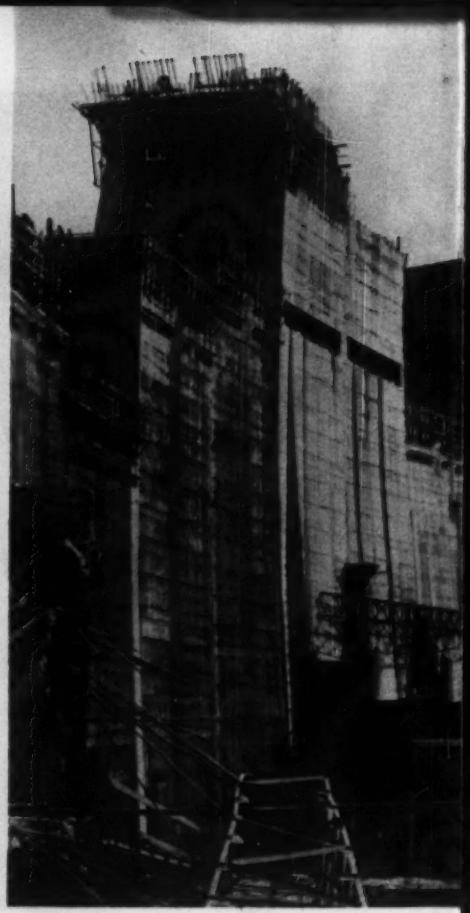
WHEELING CORRUGATING COMPANY — IT'S WHEELING STEEL

Wheeling

IMMEDIATE DELIVERY ON ALL STOCKED ITEMS FROM THESE WAREHOUSES: *Boston, Buffalo, Chicago, Columbus, Detroit, Kansas City, Louisville, Minneapolis, New Orleans, New York, Philadelphia, Richmond, St. Louis* **SALES OFFICES:** *Atlanta, Houston*



CONCRETE ARCH plugs Kariba Gorge in Africa's biggest hydro project.



TOP PART of dam will be going up during

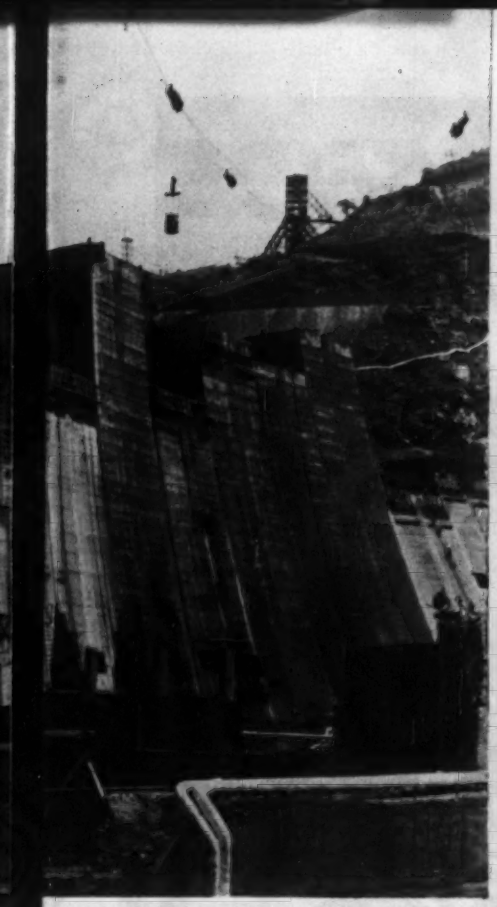
New Kariba

By T. A. L. Paton
Senior Partner
Sir Alexander Gibb & Partners
Consulting Engineers
London, England

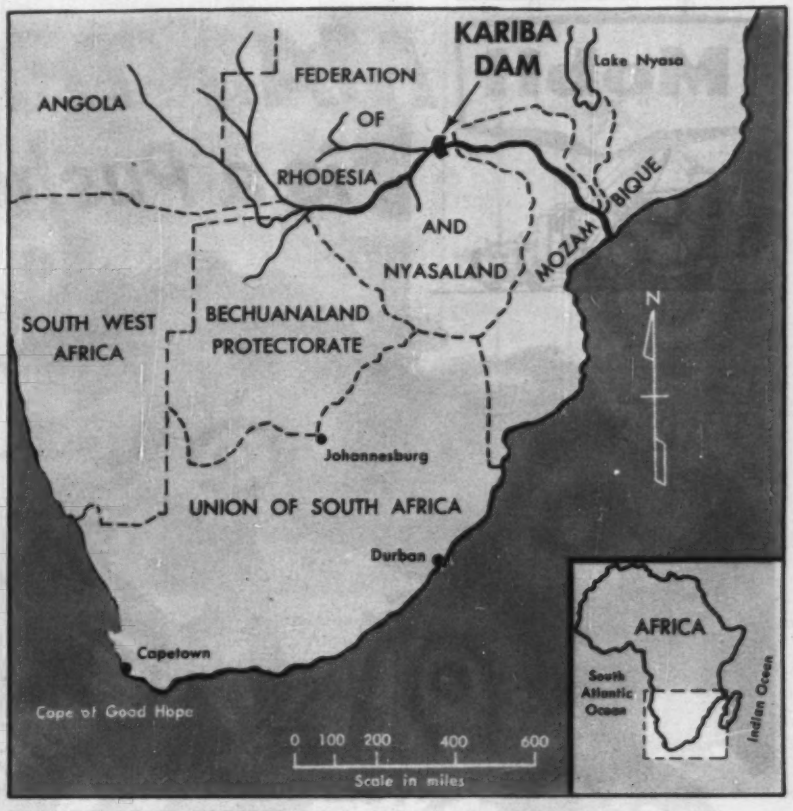
The biggest man-made reservoir in the world starts filling before the end of this year. Behind Kariba Dam in Rhodesia, the Zambezi River will begin piling up 130 million acre-ft of water—over four times the capacity of Hoover Dam's Lake Mead, biggest at present.

The job is still on schedule despite record-smashing floods in two successive years since construction began in 1955.

Kariba isn't finished yet and won't be for more than a year. But that doesn't mean it is too early to start the reservoir buildup. The enormous natural basin behind the dam will take several years to fill. It will be able to hold more than three years' total flow of the Zambezi after the 420-ft-high concrete arch is completed sometime in 1960. The buildup starting this fall is intended to get the water high enough so some of the generators can



buildup of the reservoir.



ZAMBEZI RIVER PROJECT will feed Rhodesia's power-hungry copper belt.

Dam: Ready to Harness the Zambezi

start operating under a reduced head in January, 1960.

Capacity of the powerhouse will eventually reach 600,000 kilowatts. A second power plant later will double the capacity. Ultimate output will total nearly 8.2 million kilowatt-hours a year. Mean head will be 310 ft.

• **Swapped head for bedrock**—The artificial lake will stretch 175 miles upstream over an area of 2,000 sq miles. Water level at the dam face will be 350 ft above dry-season river level.

The Zambezi knifes through Kariba Gorge about 300 miles downstream from Victoria Falls. This stretch of the river divides Northern and Southern Rhodesia, which, with Nyasaland, form the British colonial Federation of Rhodesia and Nyasaland. The dam is 2½ miles downriver from the gorge entrance at a site where drilling proved sound rock at river-bed level. The rock is metamorphic, mainly biotite gneiss.

Although a few extra feet of head might have been gained by building at the downstream end of the gorge, thick sand and gravel deposits would have made construction more difficult and—more important—might have delayed completion.

• **Big reservoir a necessity**—Flow at the gorge usually ranges between 10,000 cu ft per sec in the dry season and 200,000 cfs in the wet season (December to June). The wide seasonal variation, coupled to a need for all available water for year-round power generation, demanded a site with large storage capacity. Kariba Gorge is a narrow steep-sided canyon at the lower end of a great natural basin and meets the storage requirement. It also offers the added advantage of a central location with respect to widely spread industrial areas. The site was selected on the advice of two commissions and Andre Coyne, French consulting engineer.

• **Arch choice was economic**—Kariba is a double-curvature arch. It will stand 420 ft high from river bed to crest. The crest will be 1,900 ft long and will carry a roadway. At the base the dam will be 80 ft thick. The arch design is well suited to Kariba Gorge. It is saving considerable amounts of labor and material, compared to what an equivalent gravity dam would require.

Spillage will be kept to a minimum once the power plant is working to capacity. On the average, 84½% of the flow will generate power, 9½% will evaporate and only 6% will be spilled. However, to allow for exceptional floods, there will be six flood gates capable of passing 335,000 cfs.

The gates will be 31 ft wide and 30 ft high. They will be located about 100 ft below normal top water level. Discharged water will arc to a concrete apron 200 ft below the gates and 250 ft distant horizontally.

• **Powerhouse is underground**—Space restrictions on the site dictated an unusual powerhouse arrangement. The plant is 600 ft underground upstream from the dam. Intake and draft tubes are on the same side.

The powerhouse will be 468 ft long, 75 ft wide and 132 ft high. A long sloping tunnel will provide access for heavy machinery. Personnel will use two elevators communicating with the control room and offices 600 ft above.

(*Story continued page 33*)

Mobil

MAINTENANCE is a Pushover!

Simplified Contractor PM System,
Famous Quality Products,
Lubrication Engineering Service!

Why not use a simplified way of guarding your equipment against improper lubrication that causes unnecessary breakdowns?

All you need is Mobil's easy-to-follow Contractor PM System—a practical program that's specially designed to help reduce your paper work, help keep your equipment in top working order—and these important Mobil lubrication aids:

Famous Quality Products such as Delvac Oils, New Mobilube GX Multipurpose-type Gear Lubricant and Mobilgrease.

Lubrication Engineering Service that includes analysis, advice and use of Mobil's outstanding technical know-how and show-how.

All you have to do is get in touch with your Mobil representative. He'll be glad to show you how easy and helpful this system can be.

Available—film on equipment safety, maintenance. Call nearest Socony Mobil office.

CONTRACTOR PM SYSTEM INCLUDES:

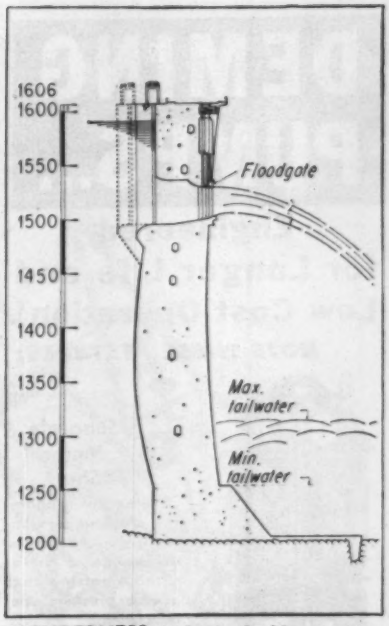
1. Record Folder—provides identifying data for each piece of equipment, holds equipment records.
2. Operator's Recommendation Chart—lists the correct lubrication recommendations for each piece of equipment.
3. Weekly Service & Inspection Report—an up-to-date record of mechanical condition of equipment, work to be done or completed.
4. Delivery Ticket—lists petroleum supplies delivered to equipment on the job.
5. "Squawk" Sheet—used by equipment operator to point out trouble spots that need attention.

Mobil *Correct Lubrication*

ANOTHER REASON YOU'RE MILES AHEAD WITH MOBIL

SOCONY MOBIL OIL COMPANY, INC., and Affiliates: MAGNOLIA PETROLEUM CO., GENERAL PETROLEUM CORP.

UNDERGROUND POWERHOUSE was carved out of rock below the upstream bank.



SLENDERNESS is due to double curvature.

There will be six turbines, vertical-shaft Francis type, each rated at 140,000 brake horse-power under a net head of 282 ft. They will drive three-phase 50 cycle generators each with a name-plate rating of 100,000 kw at 90% power factor. Temporary low-level intakes providing 150 ft net head will be constructed so that two generators can start operation before the water reaches its top level. These intakes will eventually be sealed and replaced by higher ones.

From the six permanent intakes, short horizontal tunnels will lead to vertical shafts, concrete-lined near the top, steel-lined and reduced in diameter further down.

Three tailrace pressure tunnels, with surge chambers, will take the discharge. The tunnels will be horseshoe shaped in cross section, with equivalent diameter of 34 ft.

• **Power need paces job**—Three special conditions determined the operational plan: (1) a need to produce some power by January, 1960; (2) wide seasonal variations in the Zambezi's flow; and (3) the confined nature of the site.

During early stages of construction, the river was diverted through a 1,300 ft tunnel, 33x40 ft in section, in the right bank and a channel passing through temporary openings in the dam on the left side. The contractor built foundations for the left flank in the dry, inside a thin semicircular arch cofferdam. He later breached this barrier to let the water flow through the temporary openings in the dam. Then he blocked the main channel below the dam by dumping rock-fill from a construction bridge. This created a still water pool in which the main cofferdam could be constructed around the site of the rest of the dam foundations.

The first powerhouse is being built now. Construction of a second will follow sometime in the future. Preliminary work to allow construction of intakes for No. 2 without dewatering the reservoir will be undertaken before the water level rises high enough to interfere.

• **Two floods in a row**—Worse years than 1957 and 1958 could hardly have been picked for construction of a dam on the Zambezi. First, high water with no precedent in 51 years of recorded flows overtopped the left-bank cofferdam in March, 1957. Then a year later, the record-breaking flood was eclipsed by one nearly twice as big.

Flow rate in the 1957 flood reached 300,000 cfs. This event had been considered in the design stages. We had weighed the unlikely event of an overtopping flood against the costs and delays entailed in building a higher cofferdam. The one built was by no means inconsequential. It was 60 ft high, had a 900-ft crest and contained 12,000 cu yd of concrete.

The contractor had time to move almost all his plant to safety. Thereafter, though hard-pushed, he was able to keep to schedule. By July he had progressed far enough with the left flank of the dam to permit breaching of the left-bank cofferdam, thus diverting water through the temporary openings in the left side of the dam.

The main cofferdam—160 ft high, 360 ft dia—was finished in January of this year and construction was begun inside the barrier on the central foundations of the main dam. Then in March came high water again. This time it was a freak flood with flows up to 570,000 cfs, about three times the mean flow at Niagara Falls. The torrent poured over the main cofferdam, swept away construction buildings and a $300,000 construction bridge, and tore out great chunks of the river bank. Damage totaled about a million dollars.

But not even this calamity could disrupt the schedule permanently. Work is now going better than ever. As much as 106,000 cu yd of concrete has been placed in a single month. Concreting of the dam is actually ahead of schedule now. Underground work in the powerhouse was set back about 10 days during the flood by the contractor's precaution of plugging the low-level intake (a needless measure as it turned out, since water level never

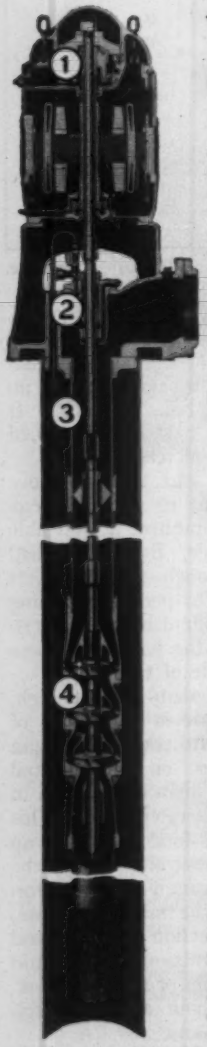
Kariba: ENR's Past Stories

Italians win contract.—	August 16, 1956, p. 138
Construction is under way.—	September 6, 1956, p 71
Diversion tunnel nears completion.—	October 18, 1956, p. 53
Builders beat a deadline.—	August 22, 1957, p. 55
Flood tops cofferdam.—	March 6, 1958, p. 31
Cofferdam is back in business.—	September 11, 1958, p. 107

DEMING PUMPS...

Engineered for Longer Life and Low Cost Operation!

NOTE THESE FEATURES:



1 Separate Motor Shaft

...with coupling above the stuffing box to facilitate installation or change of drive without raising the pump or breaking pipe connections.

2 Accessible Stuffing Box

. . . located in pump head for ease in servicing.

3 High Strength Line Shaft

. . . full-size, heat treated steel, precision ground and polished—long-wearing alloy bearing sleeves.

4 Adjustable Impeller Clearance

. . . bronze semi-enclosed impellers are readily adjustable for maintenance of maximum efficiency.

These and the many other Deming features add up to savings that you can't afford to pass up. For complete information clip the coupon below and send it today!

THE DEMING CO.

536 Broadway • Salem, Ohio

Please send me complete information on Deming Vertical Turbine Pumps.

Name_____

Address_____

City_____ Zone____ State_____

. . . For Kariba personnel, a new city was built

got quite that high). But the lost time has now been made up. The first 200-ton crane has been erected in the plant and will be followed soon by a second.

Before construction of the dam is complete, 1.4 million cu yd of concrete will have been placed in 3½ years. Placement rate has run as high as 4,300 cu yd a day. Construction of the first powerhouse, below the right bank will have required 750,000 cu yd of rock excavation and placement of 160,000 cu yd of concrete, counting intakes, penstocks, tailraces and access tunnel. For the whole project, 300,000 tons of cement—biggest single materials requirement—are being manufactured in the Federation. Coarse aggregates are coming from local quarries. Sand is coming mainly from river deposits.

• **New city at the site**—Subsidiary construction required by the Kariba project is considerable. Included are new roads, an airstrip, a housing development, railheads and bridges.

New roads totaling 87 miles link the site with two main routes.

Housing for 10,000 workers and their families, including 1,500 Europeans, was built. This required water supply, a sewerage system, a swimming pool, schools, shops, a hospital, post office and two banks. Most buildings have concrete block walls and corrugated asbestos roofs.

Design and supervision of the civil works of the project are being handled by Gibb, Coyne, Sogei (Kariba) (Pvt.), Ltd., a combination of Sir Alexander Gibb & Partners, London; Andre Coyne & Jean Bellier, Paris; and Societe Generale d'Exploitations Industrielles, Paris. Design and field work for the engineers is under the direction of the writer, senior partner in Sir Alexander Gibb & Partners. Chief representatives in Paris are Andre Coyne and P. Huvelin.

Heading up the work for the Federal Power Board of the Federation of Rhodesia & Nyasaland is D. L. Anderson, chairman and chief executive of the Board. Henry Olivier is chief resident engineer. Consultants for the electrical and mechanical works are Merz & McLellan, London, with James R. Beard, senior partner in charge, and T. K. A. Douglas, chief resident engineer.

Impresit Kariba (Pvt.), Ltd., a joint venture of four Italian contractors, holds the principal construction contract, for $70 million. Chairman of the contractor group is G. Lodigiani. The Cementation Co., Ltd., Great Britain, constructed the diversion tunnel and other works under a $5 million contract.

Kariba: Economics of the Job

Copper, other mineral and subsidiary industries in Northern and Southern Rhodesia consumed 1,800 million kwh in 1954 and expect to use 3,200 million kwh in 1960 and 6,500 million in 1970.

Apart from immediate cost, additions to existing thermal stations to meet these needs would put a serious strain on the railways since the only coal field developed in the Federation is far from the industrial centers at Kitwe, Bulawayo and Salisbury. Nuclear generation is not far enough advanced yet to compete.

Coal stations to equal the production expected from Kariba would cost $283 million, which is $34 million less than Kariba is costing. However, a comparative production cost forecast for the next 10 years shows a $123 million balance in favor of the Kariba project, making a net advantage of $89 million in favor of the dam. In addition, savings in operating costs should be nearly $28 million a year from 1971 on.

Besides the lower operating costs—largely due to the price of coal—the Kariba project has the advantage of lower obsolescence and greater flexibility of output, particularly when compared with stations used for peak-load purposes. Also the relief of load on the railways represented by long coal hauls is of special importance to the Federation.

Capital cost of the Kariba project amounts to $437 per kw of installed capacity for the first 600,000 kw stage and $265 per kw for the complete scheme. These figures include transmission lines, which will carry the power a total length of 935 miles. Omitting transmission lines the figures are reduced to $316 and $176 per kw, respectively. Comparable costs in Great Britain are $336 and $504.

Other benefits expected include recreational development, commercial fishing and irrigation. Downstream, Mozambique will benefit from the controlled discharge from the dam. Navigation there will not be subject to almost complete dry-season stoppages as in the past.

Loans for the Kariba project were arranged with the World Bank; the Colonial Development Corp., London; the Commonwealth Development Finance Co., London; the Northern Rhodesia Copper Mines; The British South Africa Co.; and commercial banks.

Makes 230′ lifts using new tubular frame boom

WHIPPING, LAGS AND BACKLASH ELIMINATED...MORE LIVE LOAD CAPACITY—LESS DEADWEIGHT

A new type of crane boom — mounted on a Manitowoc 60-ton Model 3900 crane — is doing a spectacular job for the John F. Beasley Construction Company, setting steel at heights up to 230′. The job involves all the steel work for a new bridge to carry U. S. Highway 212 over the Missouri River between La Plant and Gettysburg, South Dakota. ■ Constructed of high-strength tubular steel, the new boom is considerably lighter in weight than conventional booms. Although 200′ long, (without 30′ jib) it weighs 25% less than standard booms as short as 150′. Therefore, it can handle substantially greater live loads because of less deadweight of its own to support. ■ Operator O. K. Bean reports: "I never have trouble with boom whipping now, even when carrying heavy loads high up... and I can boom out further without danger of overloading the crane. We can still locate the 'iron' exactly on the bolt hole the first time... with no lags or backlash." ■ For specialized jobs like this or everyday jobs, you can depend on outstanding crane or excavator service from Manitowoc — check with your distributor soon!

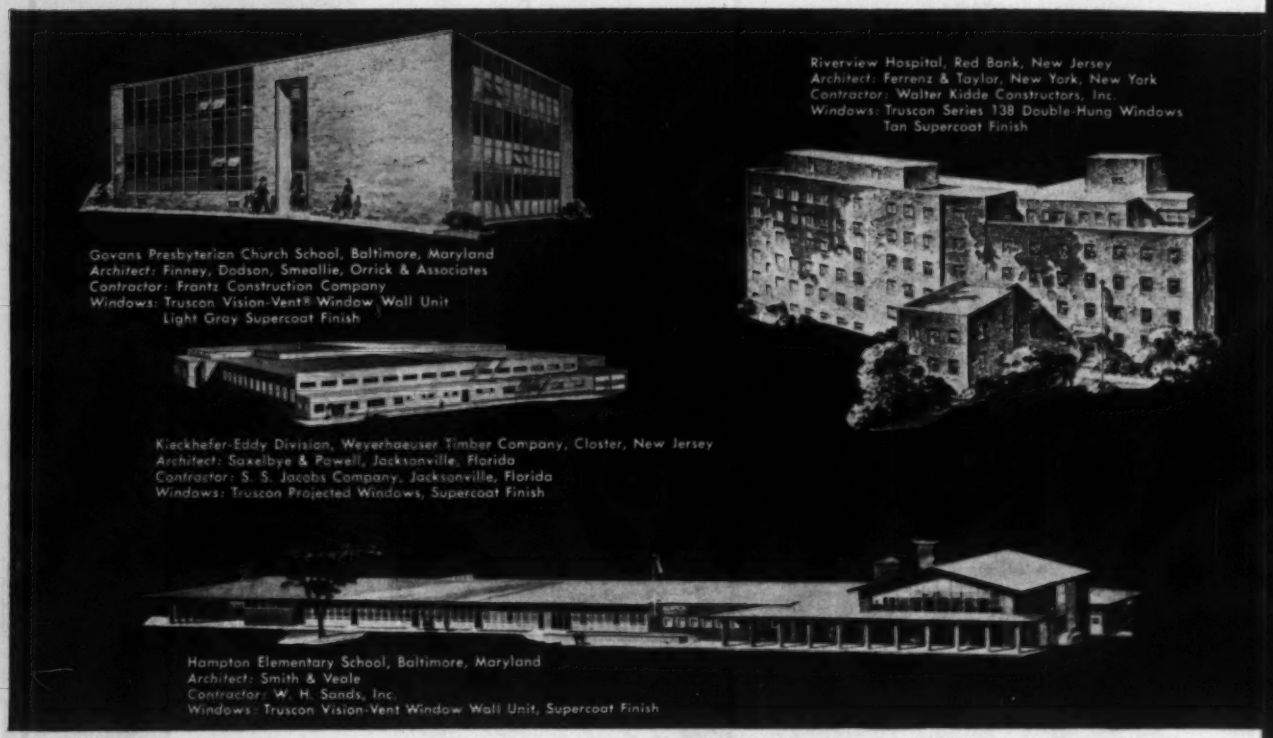
Manitowoc

MANITOWOC ENGINEERING CORP.

(A subsidiary of The Manitowoc Company, Inc.)

MANITOWOC, WISCONSIN

CRANES	SHOVELS	DRAGLINES	TRENCH HOES
20 TON - 100 TON	½-YD. - 5½-YD.	½-YD. - 6-YD.	½-YD. - 2½-YD.



Govans Presbyterian Church School, Baltimore, Maryland
Architect: Finney, Dodson, Smeallie, Orrick & Associates
Contractor: Frantz Construction Company
Windows: Truscon Vision-Vent® Window Wall Unit
Light Gray Supercoat Finish

Riverview Hospital, Red Bank, New Jersey
Architect: Ferrenz & Taylor, New York, New York
Contractor: Walter Kidde Constructors, Inc.
Windows: Truscon Series 138 Double-Hung Windows
Tan Supercoat Finish

Kieckhefer-Eddy Division, Weyerhaeuser Timber Company, Closter, New Jersey
Architect: Saxelbye & Powell, Jacksonville, Florida
Contractor: S. S. Jacobs Company, Jacksonville, Florida
Windows: Truscon Projected Windows, Supercoat Finish

Hampton Elementary School, Baltimore, Maryland
Architect: Smith & Veale
Contractor: W. H. Sands, Inc.
Windows: Truscon Vision-Vent Window Wall Unit, Supercoat Finish

TRUSCON SUPERCOAT... *new finish for steel windows wins wide designer, engineer, builder acceptance*

In just a few short months, Truscon Steel Windows with new Supercoat Finish have won the acclaim of building people everywhere.

Here's why: Truscon Supercoat Finish offers new horizons in permanent factory-applied colors... new strength, beauty in heavy-duty service... new economies in original installation costs, and reduced over-the-years maintenance.

Here's how: Exclusive Truscon Supercoat is a two-coat baked enamel finish, originally developed for water-using appliances in which corrosion must be avoided. This superbly smooth, hard and glossy finish has been improved in the research laboratories of Republic Steel to further withstand exterior exposure.

No need to sacrifice strength and solidity in window sections simply to avoid painting. Specify Truscon Supercoat Finish—now available on specification in factory shipment of all Truscon Steel Windows for commercial, institutional, and industrial construction.

Choose from eight long-lasting, high-gloss Truscon Supercoat colors. Standard color is handsome light gray. Send for free sample.

7 TESTS PROVE SUPERCOAT PERFORMANCE

SOAK TEST simulates field condition of windows standing in water.

SALT SPRAY TEST parallels coastal area atmospheric conditions of saline exposure.

WEATHEROMETER TEST duplicates the field condition of exposure to strong sunlight.

ABRASION TEST simulates abrasive materials rubbing against frames and windblown abrasives.

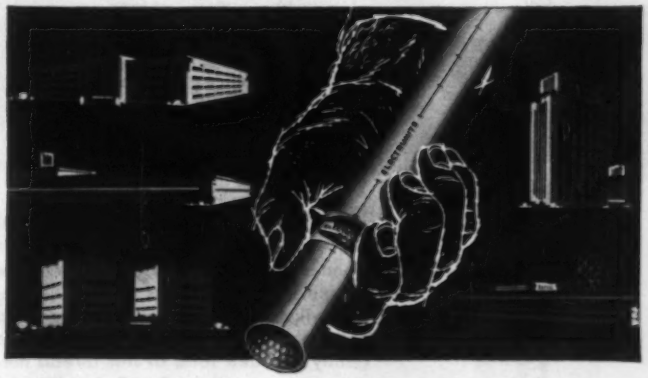
HUMIDITY TEST parallels field conditions of humidity inside and outside of windows.

ALKALI TEST duplicates field conditions of rain dripping off mortar, plaster, etc.

MAR PROOFNESS TEST simulates field condition of sliding frames across one another in handling.

NEW... straight and true TRUSCON EXPANDED CORNER BEAD gives you easier installations with fewer costly delays. It is unexcelled for straightness, trueness. Absolutely no bows, ends are square-cut; and every length is completely uniform. Greater reinforcing is made possible by Truscon expanded corner bead. Plaster flows through diamond mesh flanges and firmly grips the steel. Deep grooving behind nose makes for perfect plaster-bonding over shoulders. Send for free sample and brochure describing complete line of Truscon Metal Lath and accessories.

TRUSCON STEEL SLIDING CLOSET DOORS are real sales-closers. They glide noiselessly on nylon rollers. Women buyers can't resist them! You save, too. Installation is fast, easy. No cutting, fitting, planing needed. Doors are delivered complete with frame, ready to paint-to-match room decoration with just one coat. Truscon Sliding Closet Doors in warehouse stocks. Send coupon for size information.



REPUBLIC ELECRUNITE® E.M.T. offers architects, engineers, and builders cost economies that allow plus-sized raceways to be installed today... with a pull-in, pull-out grounded electrical wiring system that protects now, provides for the future. ELECTRUNITE meets the approval of the National Electrical Code, is produced to A.S.A. Specification C80.3, Federal Specification WW-T-806, latest revisions, and carries the Underwriters' Laboratories Seal of Inspection. Send for complete data.

REPUBLIC STEEL

World's Widest Range of Standard Steels and Steel Products

REPUBLIC STEEL CORPORATION
Dept. EN-6210 R
1441 Republic Building • Cleveland 1, Ohio

Please send the following information and literature:

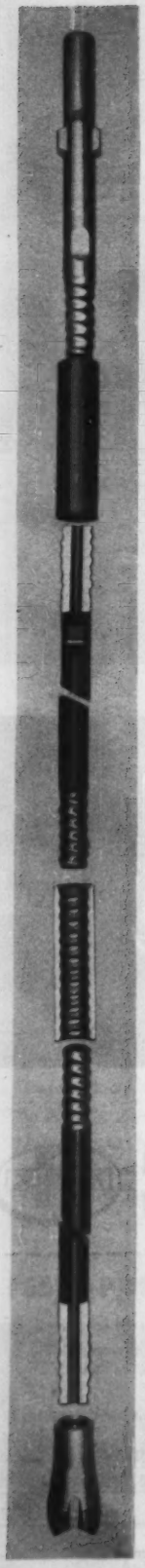
- ☐ Sample — Truscon Supercoat Finish window sections
- ☐ Truscon Metal Lath and Accessories
- ☐ Truscon Interior Steel Doors
- ☐ Republic ELECTRUNITE E.M.T. (Electrical Metallic Tubing)

Name _____ Title _____

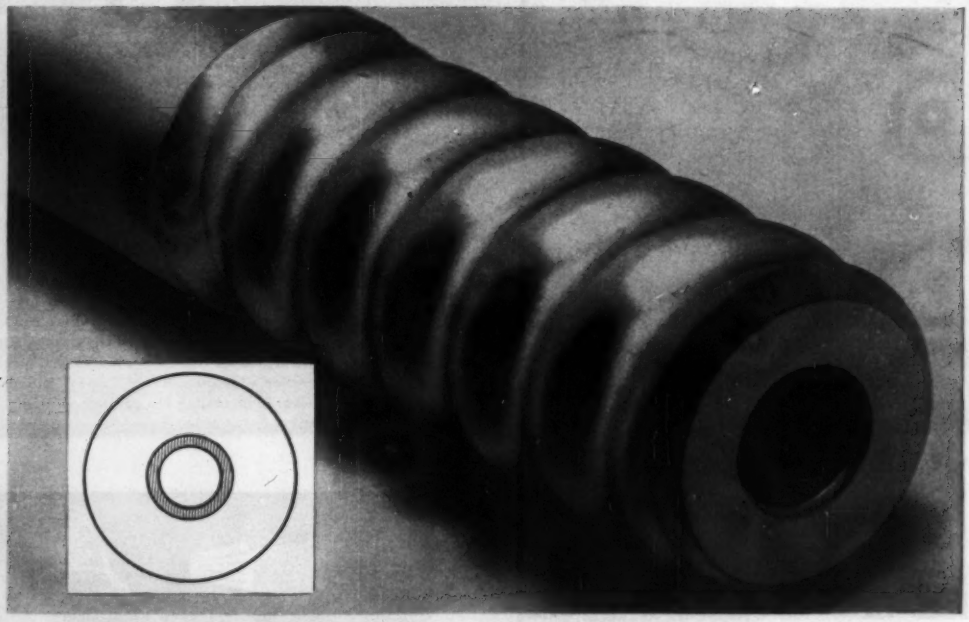
Firm _____

Address _____

City _____ Zone ____ State _____



NEW ROPE THREAD MAKES UNCOUPLING EASY WITH SANDVIK COROMANT EXTENSION STEELS



Rope-Type Threads Afford No Starting Points for Fractures

Connections used in extension drill-steel must be easy to assemble and uncouple, and connections must not become weak links during the actual drilling. Sandvik Coromant's new patented rope thread makes it easy to join and uncouple the equipment . . . yet gives a solid and positive connection. The gently rounded form of this thread means trouble-free performance—eliminates common thread and coupling failures found in "saw-tooth" threads.

The complete equipment—bit, rod, coupling sleeve and shank adapter—are all dependable Sandvik Coromant parts made of world-renowned Sandvik alloy steel. A further advantage to the user is that the steel can be re-threaded. Atlas Copco has special literature on Sandvik Coromant extension steel and long-hole drilling, available to you with no obligation. We suggest you write today!

Atlas Copco

610 Industrial Ave.
Paramus, New Jersey

930 Brittan Ave.
San Carlos, Calif.

Distributors of COMPRESSORS, ROCK DRILLS, PNEUMATIC EQUIPMENT, SANDVIK COROMANT DRILL STEEL and CARBIDE BITS

ROOF WAS JACKED 10 FT above the original building frame. Then workers placed timber shores to take the load, and removed the jacks. New column sections were added and the steel-pipe lifting shores removed.

Lift-Slab Jacks Raise the Roof

Lift-slab equipment added an additional 10 ft of headroom to a shipbuilding warehouse in Newport News, Va. The Newport News Shipbuilding and Dry Docks Co. needed the added height in one of its buildings to erect a full-scale submarine model.

The contractor used 22 hydraulic jacks to raise the 100-ton, steel-truss roof. The result was a total overhead clearance of 35 ft in the 45 x 206-ft building.

The roof is supported on 11 trusses. To raise it, the contractor placed double pipe shores under each of the trusses' ends. The shores extended from the truss bottoms to within one ft of the floor. The contractor welded an I-beam across the top of each pair of shores and to the bottom chord of the truss just above. Crews next attached a second beam across the bottom of the shores. Then they set lift-slab jacks between the two pipes on brackets welded to the building columns about 14 ft above the floor. Then workmen connected two lifting rods to the beam at the bottom of the pipe shores.

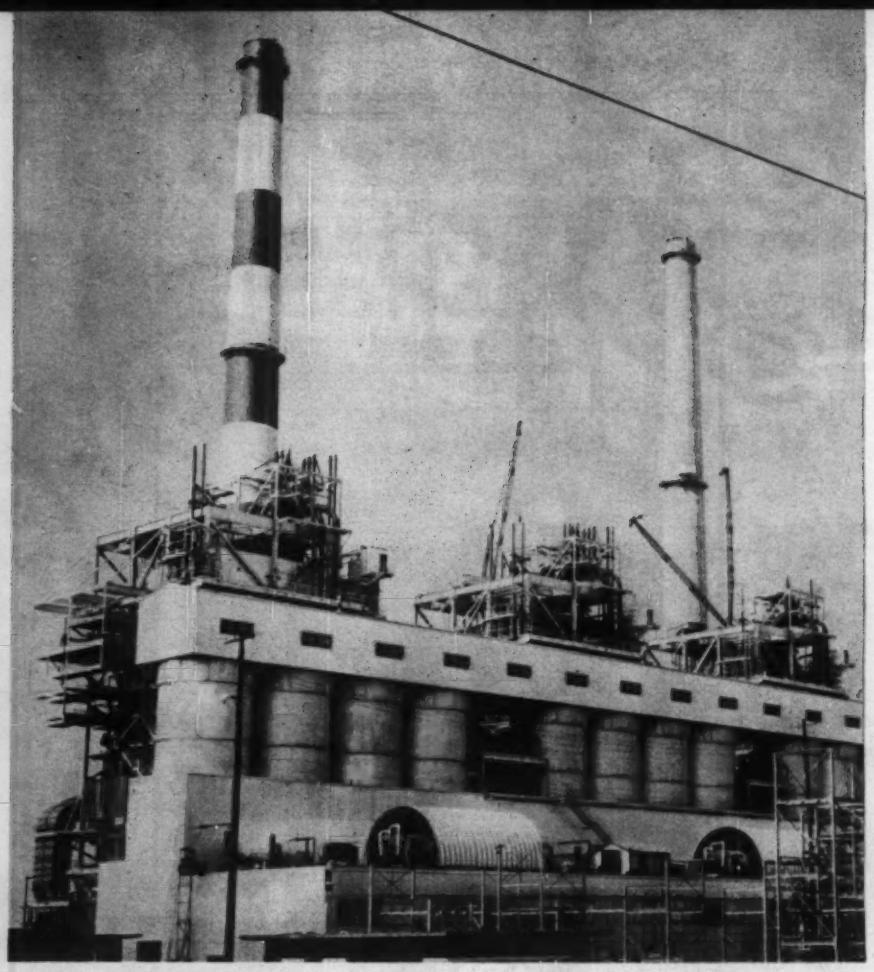
They next wedged blocking under the shores, picking up the load of the roof. After that, they cut the columns just below the roof-truss connections. A row of building siding and all conduits and piping were disconnected where they joined the roof.

Two operators controlled the 22 hydraulic jacks from a pair of consoles. Each operator handled 11 jacks. Individual jack counters on the consoles, registering lift in tenths of an inch, enabled the operators to keep the roof level during the lifting operation.

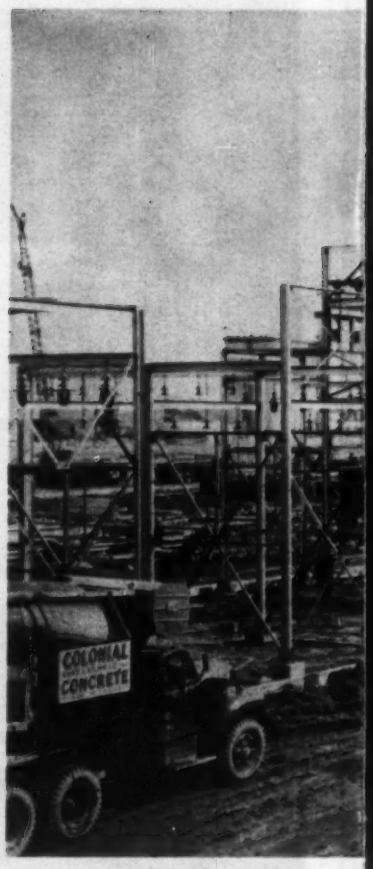
When the roof was less than one inch from the finished elevation, lifting as a unit stopped and the jacks were operated singly. The roof was raised slightly above the finished elevation. This added height allowed the contractor to place precut timber shores under the pipe shores.

The roof then was lowered, transferring the loads from the jacks to the timbers. After the jacks were dismantled, new column sections, siding, piping and conduit were added to fill the 10 ft gap, and the building was ready for use.

Total cost of the remodeling came to $18,000. The lifting portion of the job was done at a cost of $4,400 by Eastern Lift Slab, Inc., Richmond, Va.



Alcoa's new power plant uses aluminum in big boilers . . .



. . . in switchyard towers

Aluminum Shines in Alcoa Power

Alcoa believes in using its own product.

The company has put 1,000 tons of aluminum into its new Warrick power station on the Ohio River, 15 miles east of Evansville, Ind. This represents about 5¼ lb of aluminum per kilowatt of installed power. It's a 375,000 kw plant.

By comparison, about 8,000 tons of structural steel and 43,000 cu yd of concrete are being used in the huge plant, which will supply power to produce 150,000 tons of primary aluminum annually in Alcoa's new smelter under construction nearby.

• **Construction timetable**—The power plant has three units, each employing a 1 million lb per hr steam generator supplying steam at a pressure of 1,975 psi to a 125,000 kw generator, and for process steam requirements.

Construction has been under way since mid-1956. The first unit is nearly completed. The other two are scheduled to be finished by the middle of next year. The initial smelting works potline is also scheduled to be activated then.

Due to the recent slow demand for aluminum, certain phases of construction of the smelter are being postponed at this time, company spokesmen say. Over-all construction schedules, however, are being carried forward so that when the aluminum market improves the project can be finished and ready for production within nine months.

When completed, the huge plant will incorporate the most comprehensive use of aluminum in the power generating field, company officials say.

It includes a number of applications of aluminum that have been tested and accepted in power plant design, and also several design features new to power stations.

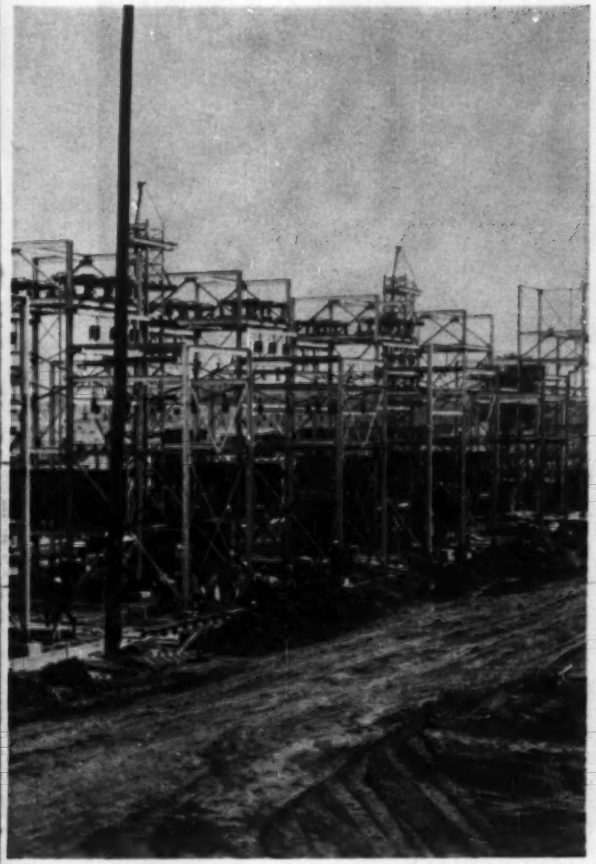
Aluminum had to compete economically with structural steel and other metals from the standpoints of initial cost, maintenance, operation efficiency and long-range investment, according to the design engineers.

The plant was not designed with the idea of making it a "showcase" for aluminum. The primary objective was to design a low-cost efficient power station. An increase of 1 mill per kwh in the cost of producing power means an increase of 1c per lb for aluminum pig from the smelter, according to Alcoa engineers. Company officials decline to reveal the cost of the plant.

• **Structural aluminum**—Greatest usage of structural aluminum is in the switchyard. A total of 105 tons is used in the 35 ft high all-aluminum towers supporting the 15 kv aluminum station busbars; the largest are 11 in. extruded integral-web channel shapes.

Extensive applications of aluminum are also found in the power generating station, which is 450 x 110 ft x 60 ft high. The structural frame is shop-riveted steel with high-strength bolted field connections. Roofs are built-up composition on precast concrete slabs. But aluminum is used for walls, stairs, handrails, floor grating, doors, windows, hatch covers, gutters and downspouts.

Largest single use of aluminum in the power plant is in floor grating, 10,700



and bents

. . . in canopies to protect turbine-generators

Plant Applications

sq yd. It is made of 1¼x⅞-in. bearing bars and ¾x⅛-in. crimp bars.

There are also 16,500 lin ft of 1½ in. dia aluminum handrails and 2,600 stair treads of specially designed aluminum die castings. They are 2½ ft wide, 10 in. deep, with an abrasive nose mounted in a recess.

• **Architectural aluminum**—A total of 160 tons of aluminum is used for architectural application. The 100x44 ft administration building and a small gatehouse will have insulated, blue, anodized aluminum walls.

Exterior walls of other heated buildings are insulated aluminum. They have a 1 in. thickness of glass fiber between panels of ribbed industrial aluminum siding. The exterior is a patterned aluminum to reduce glare. These buildings include the 64x44 ft by 47 ft high control building; a 446x28 ft coal gallery; a 135x54 ft service building; two 102x40 ft warehouses; and two small buildings for water treatment and chlorination. The framework of these seven buildings is structural steel. The roofs of all but the control building are insulated aluminum.

• **Quonset canopy**—One innovation of interest to the power plant designer is an all-aluminum, movable maintenance canopy. It represents a relatively new application of aluminum in the power plant field and is designed for the protection of the turbine-generators during maintenance and repair.

The cylindrical canopy is made up of six 14 ft long sections, with a total length of 84 ft. It can be opened at any one of five points during a maintenance operation. This permits use of the gantry crane while sheltering most of the turbine-generators. The six corrugated canopy sections roll on rails running the full length of the turbine deck inside the gantry crane rails.

• **Coal handling**—Aluminum will also play a major role in providing the 1.25 million tons of coal needed annually when the 375,000 kw power plant is in full operation.

(*Story continued on page 42*)

. . . in staircases

the latest word in dependability

WEINMAN

sump pumps

A unique advantage of Weinman sump pumps is their long, trouble-free life and low original cost. This combination of dependable performance and reasonable purchase price gives you the most efficient answer to handling drainage water, pumping liquids carrying small, non-fibrous trash and prevention of sump flooding. You don't have to take our word for it. The proof is in the impressive number of installations where Weinman Type GA-VS pumps are specified.

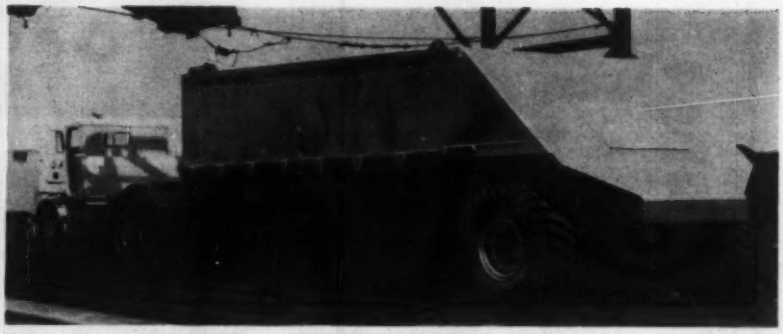
Take the word of other engineers who have found the dependability of Weinman pumps assures low maintenance costs with little or no downtime. For example, the Weinman non-clog Type U-VS vertical submerged sewage ejector gives lowest cost performance handling liquids containing sewage, sludge, trash and other foreign matter.

Free, informative bulletins give details about these efficient Weinman sump pumps. Write for your copies today. Or, see your Weinman Pump Specialist. He's listed in the Yellow Pages of your telephone directory.

WEINMAN PUMP

290 Spruce Street Columbus 8, Ohio

CENTRIFUGAL SPECIALISTS



. . . Alcoa even made truck bodies of aluminum

Six big aluminum bottom-dump truck trailers, each capable of hauling 60 cu yd of coal, will move coal 2½ miles, from a strip mine 11 miles from the plant to a coal tipple. Coal will then be transported by rail to the Warrick power plant. The 60 cu yd trailers will be towed by a 335 hp heavy-duty truck-tractor.

The coal-handling operation at the power station involves a network of aluminum-covered conveyors. A 90-day emergency coal supply storage is provided at the plant site. Coal-handling and other facilities are designed for a 100% expansion of the plant.

• **Electrical equipment** – Electrical equipment comprises a virtually all-aluminum installation. Major applications include conductors, switchyard structure, switchgear, conduit, panels, cable trays and lighting fixtures. The use of aluminum in every case, Alcoa officials say, represents planning with long-range economies in mind. Some 450 tons of aluminum are used in electrical applications.

Almost 40% of the station's aluminum is employed in the boilers, turbines, condensers, feedwater heaters and their auxiliary and structural components.

Spectacular among the mechanical applications of aluminum is the use of heat-exchanger tubing in condensers. A total of 165 miles of 1 in. aluminum-lined tubes is used in the three condensers. This brought an estimated saving of $160,000 over a conventional copper-alloy type of tubing, Alcoa reports.

More than 10 miles of aluminum tubing went into the three 125,000 kw steam turbine-generators.

• **Fills and foundations**–Since the 100 acre site is in a low-lying area adjacent to the Ohio River and subject to floods, the plant site was built up to 4 ft above the highest flood on record. A total of 3 million cu yd of fill material was hauled in and compacted in this operation. In some areas the fill is 37 ft deep.

To support the heavy structures, 4,160 concrete-filled pipe piles were driven to an average depth of 57 ft for a total of 236,000 lin ft.

Heavy-duty pumping facilities also were needed to supply a total of 210,000 gpm when the power plant is in full operation.

• **Tall stacks**–Two reinforced concrete stacks are designed to serve the first three 125,000 kw units and a potential fourth unit. The stacks are 400 ft high, 31 ft in outside diameter at the base and taper to 16½ ft at the top. They were constructed by the slip-form method of placing concrete.

Other structural features include:

• Radiant heating for snow removal on exposed walkways and working areas at the turbine deck level.

• Three aluminum-sheathed elevator shafts serving the 5 story power plant building.

• Twelve huge coal silos providing a 40 hr supply for the three 1 million lb per hr steam generators.

• A spacious air-conditioned control room with individual control panels for each of the 125,000 kw units.

• And fluorescent "egg-crate" lighting of about 75 ft-c intensity at desk level, provided by continuous rows of 75 w lamps on 15 in. centers and mounted 18 in. above the aluminum-louvered panels.

• **Planning the job**–Ebasco Services, Inc., consultant for Alcoa's Warrick power development, serves as designer, purchasing representative and construction supervisor for the entire multi-million dollar project. Ray Thorne is project manager.

For Alcoa, J. R. Ibach, works manager, also serves as project manager on construction of the project. P. L. Hartsock is electric power manager, Joel Nichols is resident electrical engineer and F. W. Howell is resident mechanical engineer.

Contractor on the power plant structure, including boilers, is Missouri Valley Constructors. Steve Dobbs is construction superintendent.

Engineers at world-famous M. W. Kellogg Co. find the detail on these 8-year-old Kodagraph Autopositive Paper intermediates easy to read. Same goes for the white prints made from them.

"8-year-old Autopositive Paper intermediates good as new!"

Talk about file-life . . . ability to take it!

Even the oldest Kodagraph Autopositive Paper intermediates in M. W. Kellogg Company files are legible, usable, printable.

After countless trips in and out of the files, line detail is still a dense photographic black—no loss of legibility or opacity. Backgrounds are still white—no yellowing, or loss of translucency. And, equally important, there is no trace of brittleness. These 8-year-old Autopositive Paper intermediates are as easy to handle in reference and printmaking as newly made ones!

Order these low-cost paper intermediates from your print room or local blueprinter. You'll be happier today and in the years ahead!

EASTMAN KODAK COMPANY
Graphic Reproduction Division, Rochester 4, N. Y.

Kodagraph Reproduction Materials

MAIL COUPON FOR FREE BOOKLET

FRESH OFF THE PRESS!

This Free Booklet shows all the short cuts possible in drafting room and print room with Kodagraph Reproduction Materials.

EASTMAN KODAK COMPANY, Graphic Reproduction Division
Rochester 4, N. Y.

Gentlemen: Send me a free copy of your booklet on Kodagraph Reproduction Materials.

67-11

Name_____ Position_____

Company_____

Street_____

City_____ Zone_____ State_____

Kodak

Railing by L. B. FOSTER CO., Jobber-Erector for Alcoa Aluminum Highway Railing

28 MORE MAINTENANCE-FREE MILES

OF ALCOA ALUMINUM BRIDGE RAILING

Savings assured on the Northern Illinois Toll Highway

Over 800,000 pounds of Alcoa® Aluminum Bridge Railing on the Northern Illinois Toll Highway have weighed in with assurance of major savings. Faster installation at minimum cost was accomplished because Alcoa Aluminum components simply assemble and bolt in place. That's all. Light weight required fewer supporting structures and allowed easier handling. Permanent freedom from painting and maintenance was achieved by aluminum's natural resistance to corrosion, industrial fumes and air-borne grit.

Of the 253 bridges on the new highway, 241 have aluminum railings. One span, the East-West Tri-State Congress Street Tri-Level Interchange, has 19,000 feet of Alcoa 1014 and 3001 railing.

For highway programs in every forward-looking state, Alcoa Aluminum is stretching taxpayers' dollars. With strong, handsome, maintenance-free aluminum, you can install it and forget it. For more information on aluminum bridge structures, railings, highway signs, lighting standards, gratings, overhead sign structures, chain link fencing and other highway applications, call your nearest Alcoa sales office. Or write: Aluminum Company of America, 1974-L Alcoa Building, Pittsburgh 19, Pa.

Alcoa 1014 Type B Bridge Railing being installed. Type B was developed by Alcoa, working with Consulting Engineers Joseph K. Knoerle & Associates, Inc.

Alcoa 3001 Type A Bridge Railing on Northern Illinois Toll Highway.

Owner: Illinois State Toll Highway Commission

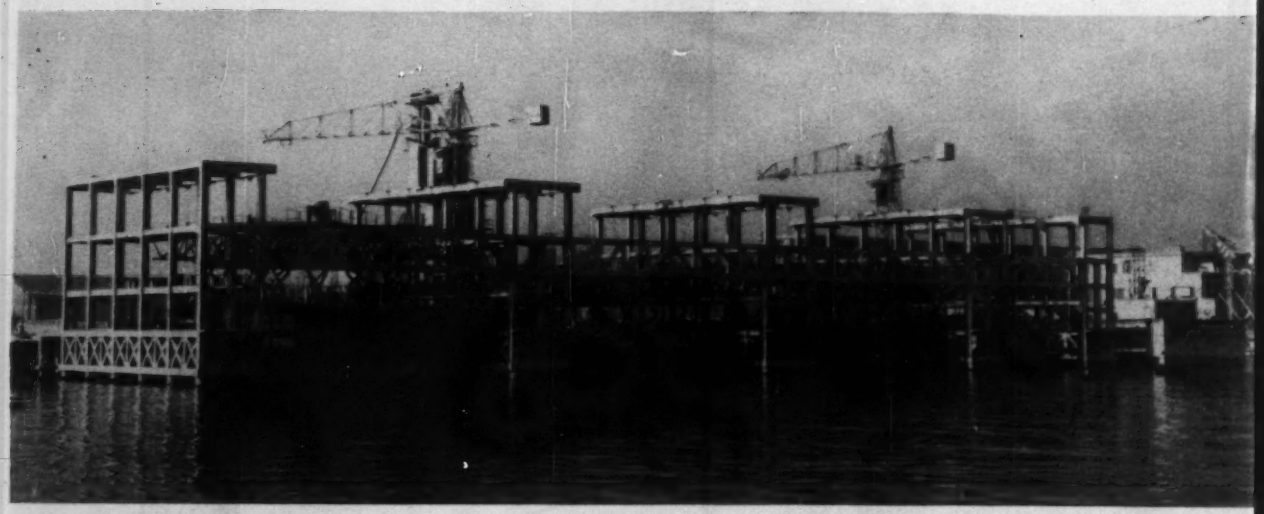
Consulting Engineer: Joseph K. Knoerle & Associates, Inc.

ALCOA THEATRE
Fine Entertainment
Alternate Monday Evenings

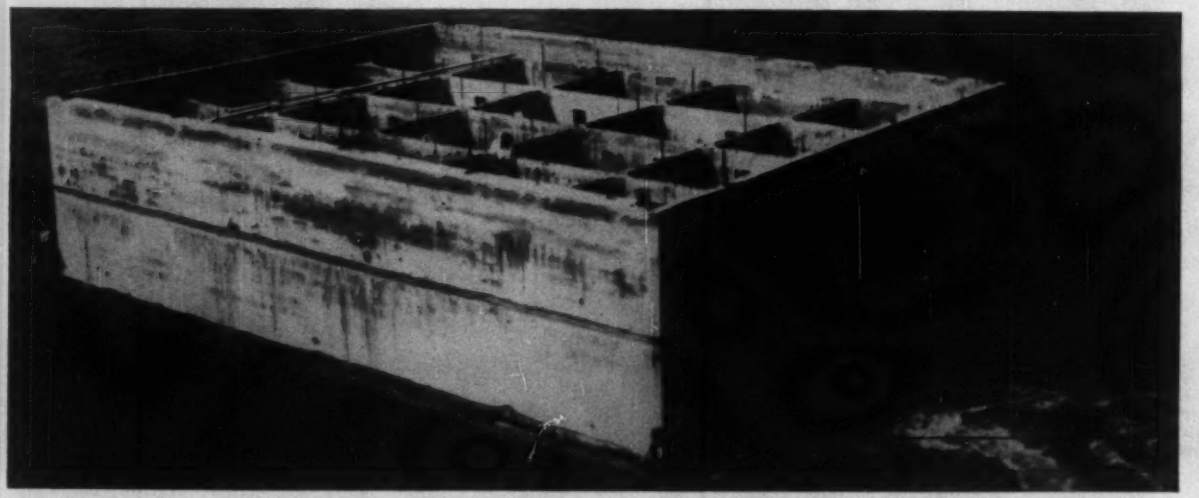
ALCOA ALUMINUM
ALUMINUM COMPANY OF AMERICA

Your Guide to the Best in Aluminum Value

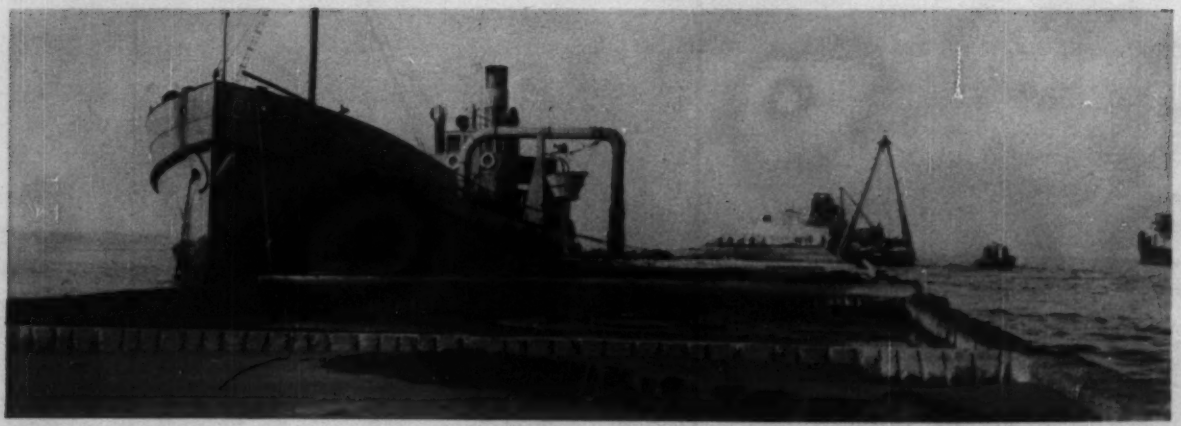
International



Waterfront plant forms concrete caissons . . .



. . . which are floated and towed to site



. . . where a dredge fills and sinks them

Genoa Builds an Airport in the Sea

Massive precast concrete caissons—300 in all—are shaping out an airfield in the sea for Genoa, the only large Italian city still without an airport.

Closed in by mountains on one side and water on the other, the city is again wresting land from the water. And the price is low: Reclamation is running to $1.40 per sq ft; land for construction on the immediate mainland sells for up to $11.60 per sq ft.

The $20 million airport is taking the form of a giant "L" whose short leg is connected to the mainland. The long leg, which runs almost parallel to the coast, will have a 6,300-ft main runway. The leg can be extended to allow for a 7,100-ft runway for jet airliners.

Over 11,700 lin ft of seawall will hold in fill for the 1,066-ft-wide long leg. An embankment pushed out from shore forms the short leg.

About 780 ft seaward of the airport, a 9,187-ft-long breakwater gives protection against winds. The water space between will be a seaplane base.

• **Precast caissons**—Both seawall and breakwater are made up of reinforced concrete caissons. These are cast at a nearby waterfront plant, towed into position and sunk in place.

The plant features movable platforms on which the caissons are formed. Casting starts with the platform high and dry. As the concrete reaches the proper stage of setting, the platforms are gradually lowered into the water. This goes on until the caissons attain buoyancy and are ready for towing.

The concrete boxes for the seawall are 18 to 20 ft wide and 65 ft long. Height, which varies with the sea bottom, is from 30 to 40 ft. Volume ranges from 1,288 to 1,870 cu yd; weight from 915 to 1,215 tons.

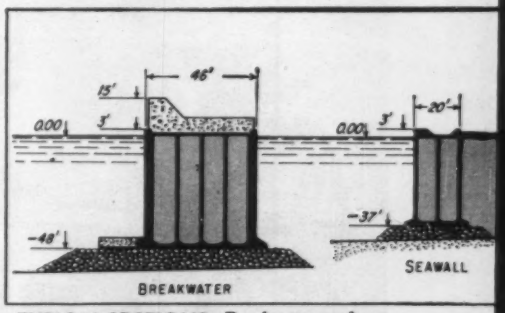
Caissons for the breakwater are larger, measuring 46 ft wide, 62 ft long and 51 ft high. Projections at their base will allow the caissons to be increased to 54 ft wide if necessary. Volume is 5,450 cu yd; weight is 2,270 tons.

• **Rubble bed**—As each caisson is finished, it is towed to its site. There a suction dredge fills the hollow concrete box with sand and water. The caisson sinks to rest on a prepared rubble bed.

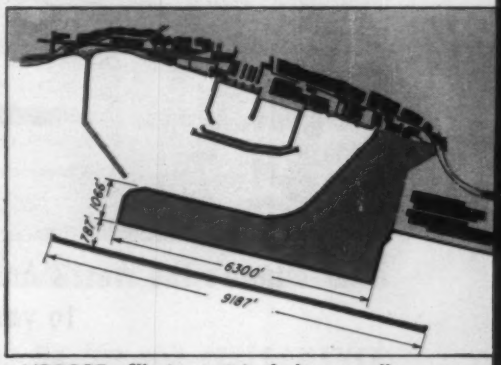
The rubble mound was placed by 660 ton capacity, metal, bottom-dump barges. Bucket dredges then leveled the rubble by dragging along on the uneven piles. The rubble mound for the breakwater is 90 ft wide and approximately 10 ft high. That for the seawall is 40 ft wide and from 5 to 8 ft high.

Caissons for the breakwater—which is already completed—project about 3 ft above sea level. Their tops are finished off with a 15-ft-high concrete superstructure cast in place. The seawalls—now being placed—will rise a little more than 3 ft out of the water.

A dredge capable of taking sand from a depth of 65 ft and delivering it up to 1,000 yd away will put in fill for the long leg of the airfield. Some 1,200 trucks are pushing out an embankment from shore to form the short leg. When finished, the Italians will have replaced 1.2 million sq yd of sea with riprap and sand to make their $20 million airport.



TYPICAL SECTIONS. Breakwater and seawall rest on rubble mounts.



AIRPORT fill is contained by seawall and protected by breakwater.

Fincosit Co. of Genoa is contractor for the project. Engineer Mario Grimaldi is works supervisor for the Consorzio Autonomo del Porto, port administration body for the city.

(*International* continued page 48)

. . . to form breakwater for airfield in the sea

here's the West's Answer to your Concrete Questions!

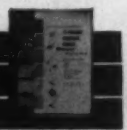
* **What parting compound delivers smooth concrete without leaving stains or residue that interfere with painting?**
"Thompson's Water Seal eliminated the problem of stains in our tilt-up concrete walls. Now panels are easily removed from the surface slab and painting proceeds speedily."
ASSOCIATED CONSTRUCTION AND ENGINEERING COMPANY OF CALIFORNIA, San Francisco, Calif.

* **Is there one curing, separating and form-sealing method that easily produces hard, dust-free surfaces?**
"Of all the chemicals we tested in our tilt-up work, Thompson's Water Seal proved the cheapest insurance against costly grief and painting troubles."
BAYCITIES CONSTRUCTION CO., Oakland, Calif.

* **Is it possible to prevent all moisture damage in concrete under pressure or capillary action, regardless of weather?**
"As waterproofing specialists in heavy construction work, we use Thompson's Water Seal on all concrete moisture problems with constant success and at a great saving."
STANLEY H. KOLLER CONSTRUCTION, Crockett, Calif.

THOMPSON'S (deep penetration) WATER SEAL is distributed nationwide by building supply companies and paint and hardware dealers.

For complete specifications, write for new booklet 7-8-1



Thompson's
MANUFACTURERS OF FINE PROTECTIVE CHEMICALS SINCE 1929

E. A. THOMPSON CO., INC. • MERCHANDISE MART • SAN FANCISCO 3, CALIF.
San Francisco • Los Angeles • San Diego • Portland • Seattle • Denver • Dallas • Houston
St. Paul • St. Louis • Memphis • Chicago • Detroit • Cleveland • Philadelphia • New York City

Two Canadian Companies Plan Joint Gas Pipeline

Two rival gas export companies bidding for the California market plan the joint construction and use of a single natural gas pipeline from Alberta through Crowsnest Pass to the British Columbia-Idaho border.

The companies, Westcoast Transmission Co. Ltd., and Alberta and Southern Gas Co. Ltd., say the move resulted from economic studies showing that substantial savings in transportation costs could be accomplished under the joint-use arrangement. Involved is a single large-diameter pipe rather than two smaller, separate pipelines. The initial cost would be about $40 million.

The line will be owned and operated by Alberta Natural Gas Co., in which both firms will have an equal stock interest. Each will continue to purchase gas from Alberta distributors independently from the other. Alberta and Southern gas goes to northern and central California and to Pacific Gas & Electric Co. Westcoast sells to Pacific Northwest Pipeline Corp., which distributes gas in the Western United States.

Soviet Engineers Plan Tidal Power Stations

Soviet engineers are exploring the feasibility of erecting three tidal power stations along the White Sea coast, according to Tass, Russian news agency.

The proposed site at Mesen Bay has been surveyed and the difference between high and low tides found to be about 28 ft. Soviet engineers believe this sufficient for the generation of electrical power. Research work will continue throughout the winter to determine flows before and after the spring floods.

Imperial Hotel Flooded As Typhoon Strikes Tokyo

Frank Lloyd Wright's Imperial Hotel showed up second best when Typhoon Ida ravaged through eastern Japan recently. Torrential rains turned downtown Tokyo's streets into rivers that flooded basements of practically all buildings in the area. The famous 900-room Imperial Hotel was no exception.

The disaster gave the contenders new ammunition for the argument over which is better—Wright's old earthquake-proof building or the hotel's new annex designed by Teitaro Takahashi, a Japanese architect (ENR Aug. 14, p. 25). The annex suffered almost no water damage.

New Curtiss-Wright Scraper Delivers 20% More than Rated Capacity!

. . . The chart at right tells the story . . . Under difficult on-the-job conditions this Curtiss-Wright CW-226 *averaged* more than 5 yds. better than rated capacity . . . moved this load at money-making speed — dumped swiftly and evenly . . . This type of job-proven performance keeps cost-per-yard figures *down* — profit figures up! . . . Every piece of Curtiss-Wright construction machinery is built to *earn* its price many times over — see your distributor today for complete information on the CW-226 and the many other units in the Curtiss-Wright line!

THIS ON-THE-JOB PERFORMANCE REPORT TELLS THE STORY

MODEL CW-226

2-axle, self-propelled scraper designed for rated capacities of:

26.0 Cu. Yds. Struck
36.0 Cu. Yds. Heaped

Average Payload Hauled:	31.2 Cu. Yds.
Loaded Unit Speeds to:	38. m.p.h.
Average Loading Time: (with single pusher, less than top h.p. rating)	1 min., 30 sec.
(with tandem pusher)	50 sec.
Average Loads:	85,800 lbs.

SOUTH BEND DIVISION

CURTISS-WRIGHT

CORPORATION

SOUTH BEND, INDIANA

More Capacity
Higher Head
Longer Life

THE NEW HOMELITE 300

NEW SEAL LASTS FIVE TIMES LONGER

New pump shaft seal design mates carbon seat against ceramic-coated bronze ring for extra long service life on toughest pumping jobs. This new seal, standard equipment on the new Homelite "300" pumps, lasts five times longer than ordinary cast iron-bronze seals to slash pump downtime and maintenance costs to a new, negligible low.

USED BY MEN WHO BUY EQUIPMENT FOR WHAT IT SAVES

Add up all the features of the new Homelite "300" pumps and you'll find your best and surest pump answer to saving money on the job.

More Capacity. These new 3" pumps handle 18,000 gallons per hour. That's 300 gallons per minute. You can do your pumping in minutes . . . eliminate labor-costing delays. You can pump muddy or sandy water easily without clogging.

Light Weight. With dimensions of 25"x 19" x 23", the Homelite "300" pumps weigh only 103 pounds. They're easy to truck, easily picked up and carried by one man, fast to get on the job in any location.

Higher Head. Homelite "300" pumps are guaranteed to self prime at 28 feet above water level. Total head, including friction, is 65 feet. Standard-speed model gives you a total head of 125 feet. High-pressure model gives you total head of 185 feet.

Variable Speed. Hand throttle control allows you to pace these pumps to the job. You can throttle them down for quiet, economical handling of seepage.

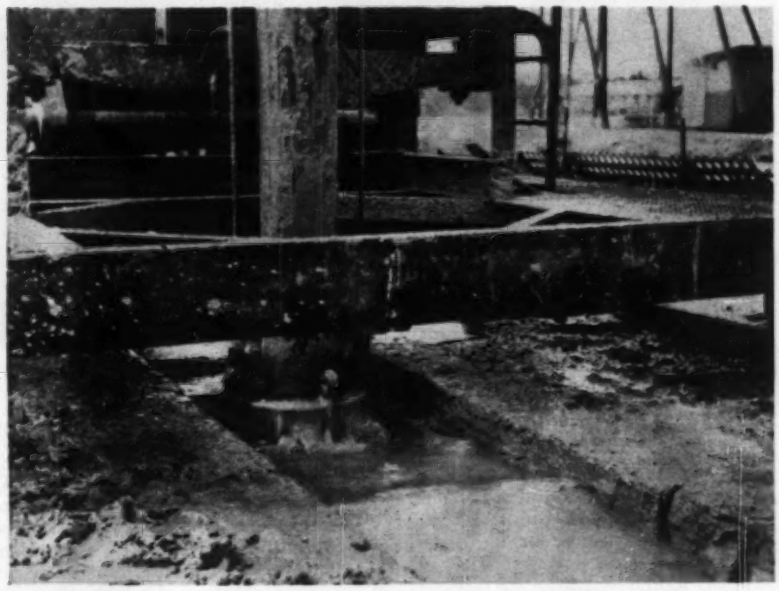
Longer Life. Homelite pumps are famous for fast starting and trouble-free operation in any kind of weather. The design and workmanship that goes into a Homelite air-cooled gasoline engine driven pump is your guarantee of long life for the pump. Now with the new seal, standard equipment with the "300" pumps, you're even surer of long life and low maintenance cost.

It will pay you to ask for a free on-your-job demonstration of the new Homelite "300" pumps right away. Three models available: slow-speed; standard-speed and high pressure.

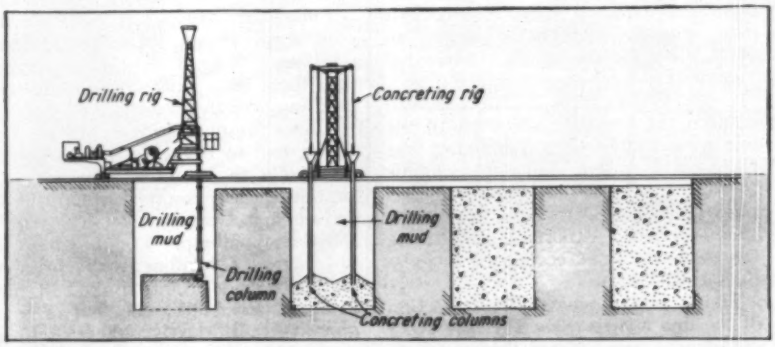
Homelite factory branches are located throughout the country. Your nearest one is as close as your phone. Call them or write for convincing demonstration or rapid service in any way.

HOMELITE
CARRYABLE
PUMPS GENERATORS • BLOWERS
CHAIN SAWS

HOMELITE • A DIVISION OF TEXTRON INC.
1111 Riverdale Ave., Port Chester, New York
In Canada — Terry Machinery Co., Ltd.



MUD SLURRY is placed in trench to penetrate sides and hold the walls without shoring. Hydraulic pressure of mud is enough to hold walls to great depths.



DRILLING RIG excavates long trenches in alternate sections of 50 ft long. Concrete is tremied to bottom of trench and forces mud out at surface.

Mud Holds Deep Trench Walls

French engineers have had great success using mud slurry to hold the walls of deep trench excavations. The procedure is similar to one to be used in this country at the Wanapum Dam on the Columbia River (ENR July 17, p. 22). The procedure has also been used in subway excavation in Milan, Italy (ENR, Aug. 28, p. 48).

At Markolsheim, near the Rhine River, trenches up to 138 ft deep were excavated in gravel to permit placing of a continuous concrete diaphragm 2½ ft thick around a powerplant excavation. For the diaphragm, 10,000 cu yd of concrete was placed.

The trenches were excavated by a drilling rig with a bit as wide as the trench. Drilling mud, with a specific gravity ranging from 1.1 to 1.8, is pumped into the trench as excavation proceeds. The mud filters into the walls of the trench forming a watertight, resistant cake which strengthens the wall and holds it.

The difference between the hydraulic pressure of the mud and ground water increases with depth of excavation and is enough to hold the trench against the increasing thrust of the soil.

The bore operates with an up and down motion. At the same time, the rig travels slowly on rails placed along the longitudinal axis of the trench. Moving back and forth, the drilling tool scours the full length of the trench and progressively deepens it to the required depth.

The drilling mud is continuously pulled from the trench bottom through the drilling rod by a high discharge centrifugal pump. The high velocity of the mud carries all the cuttings to the surface. The cuttings are separated from the mud by screening or centrifuging and the mud is returned to the trench.

Concrete is tremied into the trench through several chutes reaching to the bottom. It displaces the mud, which flows out at the trench surface.

At Markolsheim, three rigs were used at the same time for the long trenches. Excavations were done in lengths between 20 and 50 ft. Alternate lengths were excavated and concreted first. After the concrete had set the remaining sections were constructed. The Soletanche Co., Paris, was contractor for the excavation and placing of the concrete diaphragms. They are also performing similar work on another site where the wall thickness is five ft.

Combination Unit Speeds Drawing Reproduction

Microfilming, catologing and printing have been combined into one system, by Harold Xerox, Inc., Rochester, N. Y. This speeds reproduction and reduces needed storage space for engineering drawings.

Three basic steps are involved: copying onto microfilm of original drawings or tracings; automatic mounting of processed microfilm frames into die-cut apertures of data-processing cards; and insertion of the cards into a Xerox Copyflo 24 continuous printer, that automatically reproduces the drawings by xerography at the rate of 20 fpm.

Xerography is a fast electrostatic copying process that turns out dry black-and-white prints, photographically accurate and up to 24 in. wide.

Space economies are impressive since small file drawers containing thousands of aperture cards may be substituted for large floor areas of conventional drawing files.

Unitized microfilm systems may combine the equipment of several manufacturers. They are being displayed at "Copyrama," a touring business show, which will appear in major U.S. cities.

(*Field and Office continued page 52*)

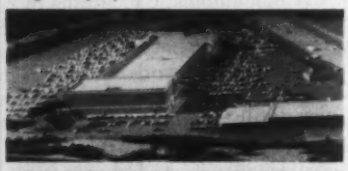
Easy, Proven Way to Permanently Bond New to Old Concrete – for less than 4¢ per square foot!

WELD-CRETE

Weld-Crete is the patented, job-proved liquid bonding agent which enables you to *permanently* bond new concrete, or cement plaster, *directly* to any other structurally sound surface no matter how smooth! No costly, time-consuming surface preparation. Just apply, let dry, and pour or trowel new concrete. Ideal for new construction, remodeling, repairs . . . *ramps, floors, precast shapes, driveways, highways, walls, machine mounts and pads.* Weld-Crete has equal bonding permanence all climates, all surfaces, all sorts of conditions. When used with quick setting cement topping you can lay new floors, ramps, driveways one day and run heavy truck traffic over them the next. Get fact-packed literature from your Building Materials Dealer, see Sweet's File, or write us direct. Address Larsen Products Corporation, Box 57561, Bethesda Maryland.

Typical **WELD-CRETE** Applications

GRANVILLE ST. BRIDGE, VANCOUVER, BRITISH COLUMBIA—One of the largest 8 lane bridges in North America. Here Weld-Crete was applied to bridge surface to bond cement dividing strips. Now, over 4 years later, bonds are as good as new. *General Contractor:* Dominion Bridge Company.



SEVEN CORNERS SHOPPING CENTER, FALLS CHURCH, VIRGINIA—During construction of this 600,000 sq. ft. structure, initially only part of floor was poured and floated to a smooth finish. Areas in which show windows would be added were poured as base slab only. Slab was coated with Weld-Crete. After store fronts were custom-built, delayed toppings of 1" to 1½" thick were poured with assurance of permanent bond to base slab. These toppings were then finished with asphalt tile, wood, or finish flooring of lessee's choice. Designed and constructed by The Kass Realty Co. of the Kass-Berger Organization under direction of J. Franklin Groff. *Concrete Contractor:* Moses-Ekco.

PIPE-LINING MACHINE applies mortar centrifugally to pipes as small as 4 in. dia.

Cheaper Way To Line Small Pipe

A new proprietary method of lining small diameter water and sewer pipe is credited with economy in lining 9,400 ft of 12 in. water pipe in Philadelphia. Key to the process is a machine that applies mortar centrifugally to pipes as small as 4 in. dia.

The developer of the new machine, Centriline Corp., a subsidiary of Raymond International, New York City, is now using the method in place of an older lining process in which a mandrel is dragged through a mortar-filled pipe.

In the Philadelphia job, tubercles had reduced the hydraulic efficiency of the line considerably. Before relining, the pipe had a Hazen-Williams hydraulic coefficient below 70 and in some sections as low as 50. Removal of the corrosion-produced deposits and relining the pipe raised the coefficient to more than 100.

Here's how a typical 500 ft section of the line was treated. The city water department first isolated the stretch to be processed.

If consumers were to be affected, the contractor installed a by-pass line to provide temporary service. For access, a 5 ft section of pipe was removed at each end.

Spring steel rods, pushed through the pipe, carried a steel cable to the opposite end. Here a series of steel scrapers were attached to the end of the cable and winched back and forth to remove the tubercles. A series of rubber swabs followed in like manner, removing the loose particles. The contractor then tested for remaining obstructions by pulling a solid-plug "prover" through the line.

The Centriline crew then passed the machine's mortar hose through the pipe, along with a power cable and a pulling cable. They attached all three to the lining unit at the opposite end.

The lining machine was started, adjusted and pulled through the pipe.

Metering the mortar pump and regulating the rate of travel controlled thickness. To apply a ⅛ in. coating, the machine traveled some 15 fpm and its dispensing head rotated at about 1,000 rpm.

Four hours after lining the main, the crew flushed the intersecting laterals with water to remove mortar sprayed into them in passing. A day later the line was back in service.

Under the mandrel method, an excavation had to be made at each lateral to prevent the mandrel from forcing a large amount of mortar into the pipe, according to Centriline.

Other small-pipe jobs handled for utilities by Centriline with the new method include 15,000 ft of 12 in. pipe in Rochester, N. Y.; 6,000 ft of 8 in. pipe in Athol, Mass.; 9,000 ft of 10 in. pipe in New Haven, Conn.; and 7,000 ft of 12 in. pipe in Hackensack, N. J. The firm has also used the process for a number of industrial jobs.

Construction Machinery Floats to Job on Barges

A Florida contractor recently shipped more than 200 pieces of heavy construction equipment on nine barges from Chicago to a Louisiana job site. The machinery will be used to build a gas pipeline from Baton Rouge, La., to Kissimmee, Fla.

Cargoes included such items as welders, trenchers, sidebooms, draglines, backhoes, cranes, dump trucks.

Union Barge Line Corp., Pittsburgh, handled the shipment for Midwestern-Walco Contractors, St. Petersburg.

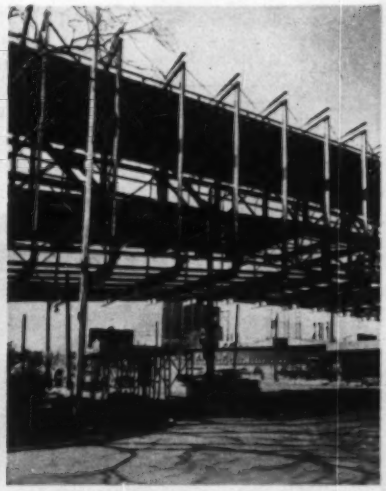
new marking

...same reliable quality in high strength bolts

...for buildings

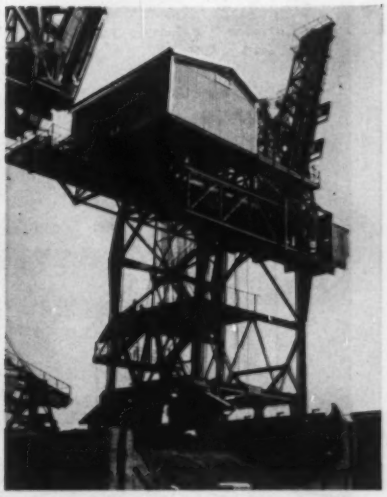
No doubt about their superiority over rivets in performance and in economy. High Strength Bolts make permanently tight connections under all loading conditions; cost less installed than rivets; are approved by AISC and local codes.

...for bridges



Easier installation, permanently tight connections, and joints that are stronger in shear and in tension... these advantages make high strength bolts the obvious choice for the many new bridges, big and small, now being built.

...for equipment



Ore unloaders, cranes and other heavy duty equipment that take a beating from vibration and high dynamic loads do not loosen and deteriorate when joined with high strength bolts. No more need to burn out worn rivets.

LOOK not only for three radial dashes that identify high strength structural bolts . . . but also for the RB&W that assures you a product made with uniform dimensions, clean threads, and easy assembly by any method you use. And note the "325" indicating conformance to ASTM A325 specifications, as independently verified by N.Y. Testing Laboratories, Inc. Matching heavy nuts are also now identified by 3 concentric dashes.

Helpful booklet on high strength bolting still available. Send for as many as you need. Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, New York.

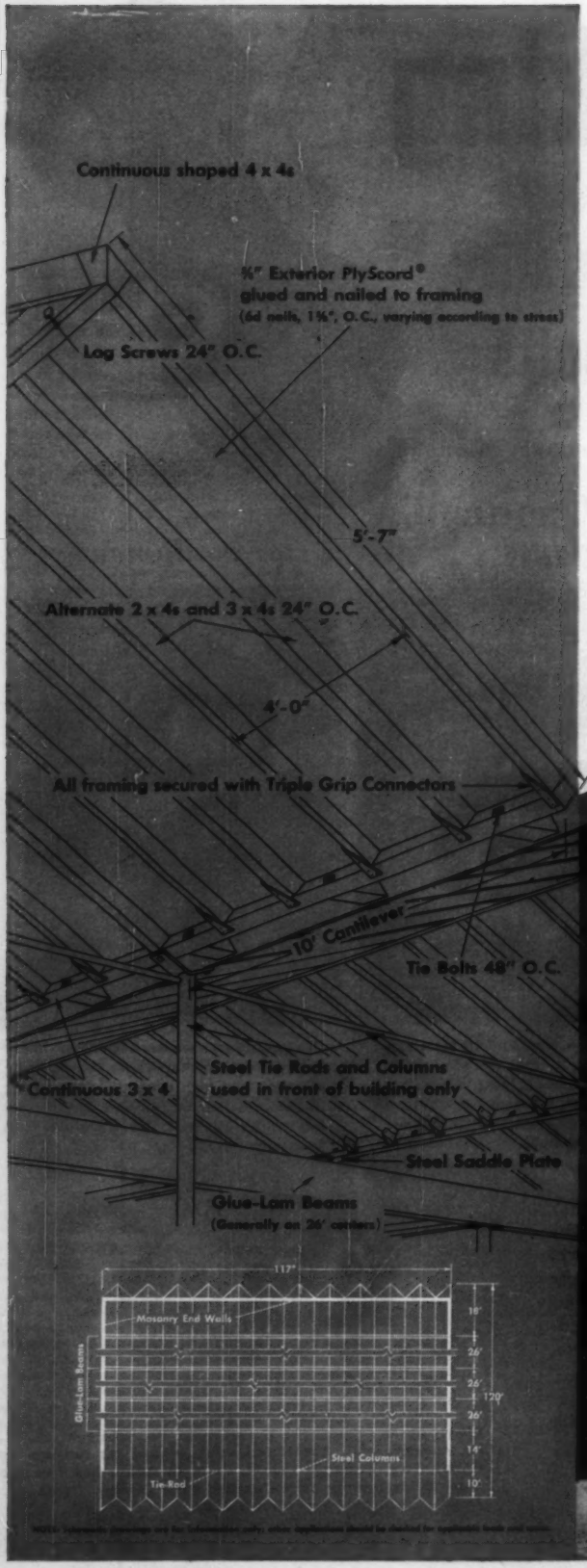
R B & W

114th year

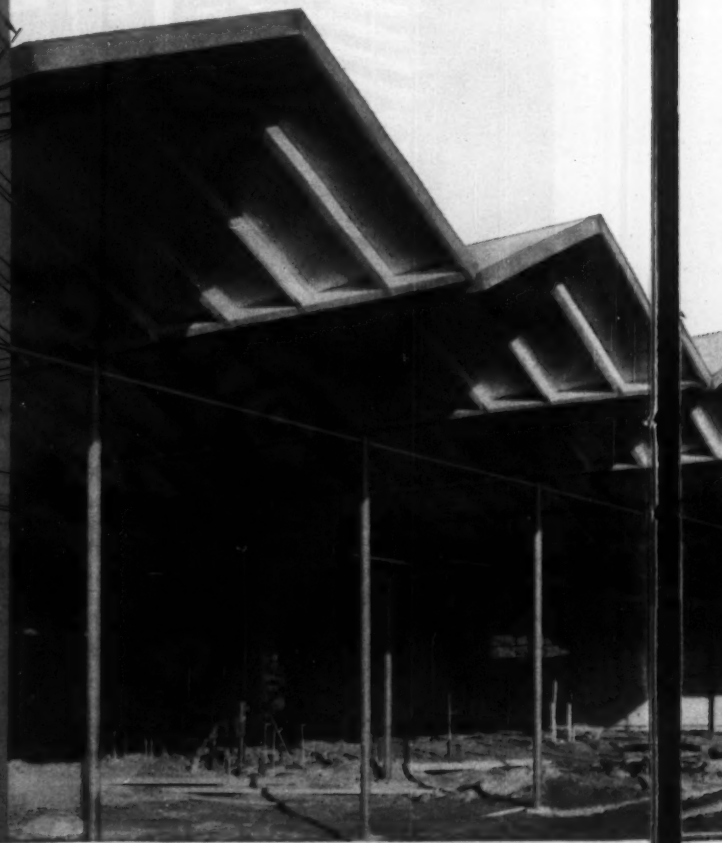
Plants at: Port Chester, N. Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. **Additional sales offices at:** Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. **Sales agents at:** Milwaukee; New Orleans; Denver, Fargo. **Distributors** from coast to coast.

LARGEST INDEPENDENT PRODUCER OF HIGH STRENGTH BOLTS FOR CONSTRUCTION

New low-cost covers



YEAKEL-POWELL BUILDING
LOCATION: Burien, Wash.
ARCHITECT: Jack N. Bryant, A.I.A.
STRUCTURAL ENGINEER: Harvey H. Johnson
CONTRACTOR: Powell Construction Co.



fir plywood folded plate roof 14,000 sq. ft. in only 9 hours

Fabricated on the job with common labor, new roofing system costs 10-20% less than conventional construction—provides attractive appearance, superior structural values.

THIS PRECISELY ENGINEERED folded plate roof—the first of its kind using lumber-framed plywood sections in series—offers several unique advantages:

Low cost and fast job-site assembly using common labor. Plywood components were installed by a 6-man crew in less than nine hours. Total costs, including all labor and materials, came to less than 80c per square foot—a figure some 10 to 20 percent less, locally, than joist or truss construction accomplishing the same clear floor area.

Structural simplicity. The roof consists of 11 plywood folded plates which rest on four glue-lam beams. Each of the inclined planes is a rigid plywood diaphragm, paired to form a giant self-supporting inverted V-beam which spans 10 feet from valley to valley and 26 feet from beam to beam. Posts, trusses and purlins are eliminated and the architect estimates that spans could be almost doubled where called for by the design.

Design adaptability. The plywood folded plate system provides large, clear floor areas and freedom in arranging—or rearranging—interior partitions. The folded plate creates an unusually attractive profile, with bays defining individual store areas.

FOR INFORMATION about fir plywood folded plate construction or other data—write

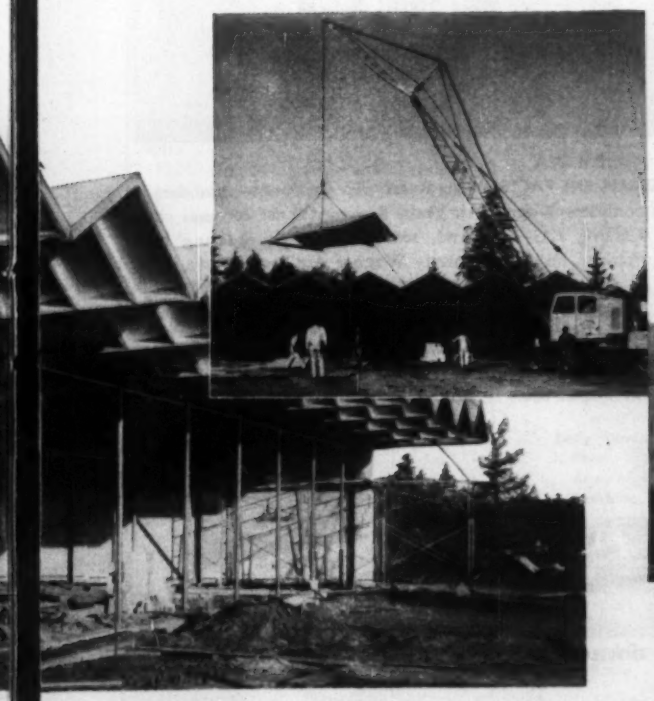
DOUGLAS FIR PLYWOOD ASSOCIATION

TACOMA 2, WASHINGTON

—an industry-wide organization devoted to research, promotion and quality control

Always specify by DFPA grade-trademarks

DFPA TESTED QUALITY



Fir plywood folded plate components were built on ground, crane-lifted into position in pairs. Heaviest lift was about 1,000 lbs. Contractor was impressed with the ease with which his crew assembled and erected sections.

The folded plate provides distinctive profile, freedom in placement of interior partitions. The front was given a 10′ overhang to cover store entrances. Underside was covered with medium density overlaid plywood to provide smooth, check-free paint base.

Do all of YOUR trucks have ample air?

Wagner
ROTARY COMPRESSOR

provides ample air at all times for safe operation of brakes

You are assured of a continuous, dependable source of air for the operation of brakes and other air powered devices with high volume, efficient Wagner Rotary Air Compressors.

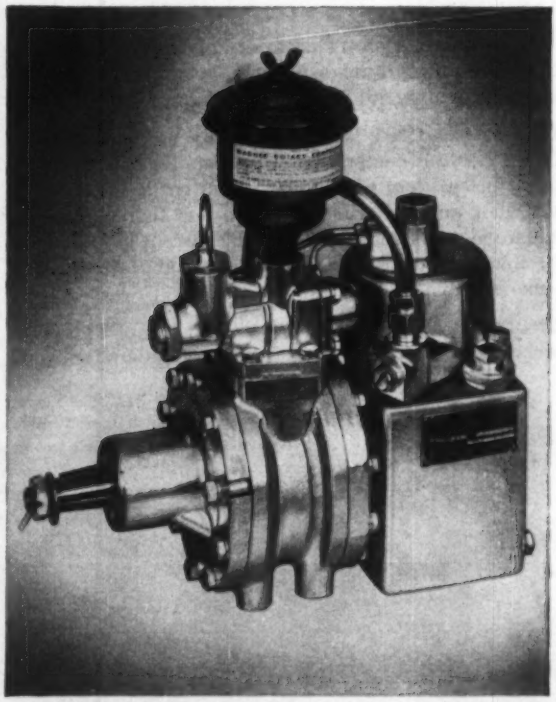
With either 9 or 12 c.f.m. Wagner Rotary Air Compressors you gain these additional performance features:

LONG COMPRESSOR LIFE—All rotating parts are turned by the shaft, suspended on two bearing surfaces. This results in less friction—adds to compressor life.

FAST RECOVERY OF PRESSURE—Rotary compression forces all air from the compression chambers. Such high volumetric efficiency means rapid air pressure recovery at all compressor speeds.

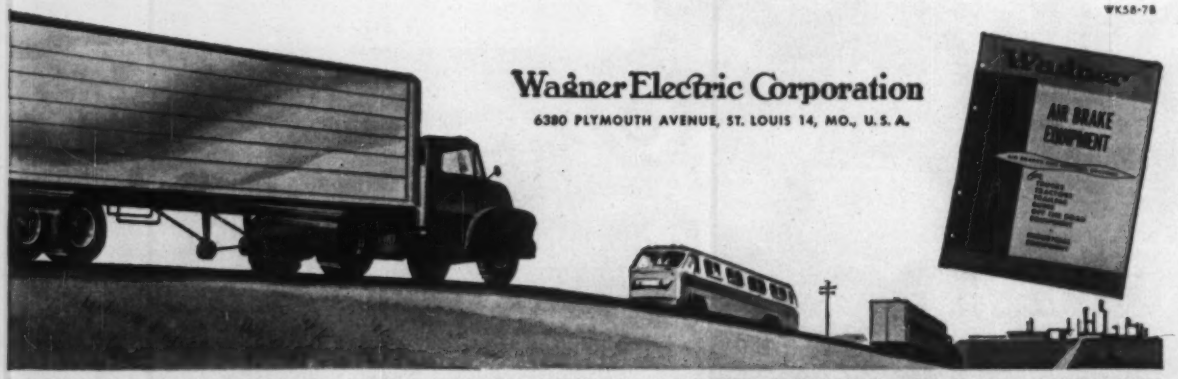
LOW TEMPERATURE AIR DELIVERY—Oil is separated and cooled *before* air is discharged from the compressor. This prevents carbon formation—reduces fire hazard—permits use of flexible air hose in discharge line.

SMOOTH, QUIET OPERATION—Thousands of small overlapping air compression impulses per minute maintain a uniform load and assure smooth, quiet operation with long belt life.



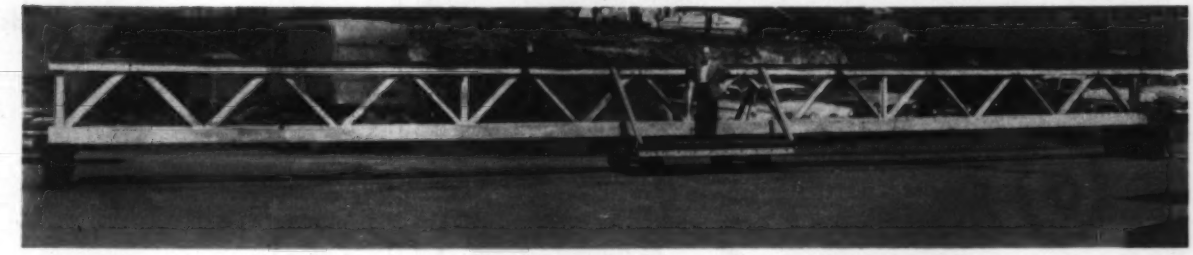
GET ALL THE FACTS on the Rotary Air Compressor and details on complete Wagner Air Brake Systems. Write for your copy of Catalog KU-201. And, remember, when ordering new equipment, be sure to specify Wagner Air Brakes.

WK58-78



Wagner Electric Corporation
6380 PLYMOUTH AVENUE, ST. LOUIS 14, MO., U.S.A.

LOCKHEED BRAKE PARTS, FLUID, EXCHANGE SHOES and LINING • AIR HORNS • AIR BRAKES • TACHOGRAPHS • ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES



Truss Made of Steel and Prestressed Concrete

Combining structural steel and prestressed concrete in the design of this 70 ft truss reduced its weight from 14 to 9 tons, the designer says.

The 10x16 in. bottom chord is prestressed concrete; top chord is part of an 8 in. wide-flange shape. Web members are 5x3½ in. steel angles. Homer O. Hadley, of Hadley & Hadley, Seattle consulting engineers, also says the system allows a 12% cost saving.

The truss has been tested at the University of Washington Engineering Experiment Station. The top flange, stressed to nearly 30,000 psi, recovered all but ¼ in. of its total 1⅜ in. deflection. The truss design is being considered for use in a bridge project.

Here Are New IES Lighting Recommendations

We're still in the dark ages, according to the newest lighting recommendations of the Illuminating Engineering Society. Fourteen IES committees, after studying hundreds of specific seeing tasks, have recommended an average hike of 150% in lighting levels.

The new practices are based on an eight-year study of human sight conducted at the Vision Research Laboratories, University of Michigan, under H. Richard Blackwell (ER June 19, p. 115).

Committees of the lighting society have approved new levels for 10 major fields of occupation; recommendations for marine transportation, schools, churches and roadways will be reported soon.

Following is a partial list of new lighting recommendations (in foot-candles) and the levels previously used:

	NEW	OLD
AIRPLANE MANUFACTURING:		
Stock Parts—		
Production	100	50
Inspection	200	100
Parts Manufacturing—		
Drilling, Riveting and Screw Fastening	70	30
Spray Booths	100	30
Sheet Aluminum Layout and Template Work; Shaping and Smoothing of Small Parts for Fuselage; Wing Sections, Cowling, etc.	100	50
Welding—		
General Illumination	50	30
Supplementary Illumination	1000	1000
Sub-Assembly—		
Landing Gear, Fuselage, Wing Sections, Cowling and Other Large Units	100	30
Final Assembly—		
Placing of Motors, Propellers, Wing Sections and Landing Gear	100	30
Inspection of Assembled Ship and its Equipment	100	50
Machine Tool Repairs	100	100
AIRPLANE HANGARS:		
Repair Service Only	100	–
ASSEMBLY:		
Rough Easy Seeing	30	20
Rough Difficult Seeing	50	–
Medium	100	50
Fine	500	100
Extra Fine	1000	300
AUTOMOBILE MANUFACTURING:		
Frame Assembly	50	30
Chassis Assembly Line	100	–
Final Assembly & Inspection Line	300	–
Body Manufacturing—		
Parts	70	30
Assembly	100	30
Finishing and Inspecting	300	200
CHEMICAL WORKS:		
Hand Furnaces, Boiling Tanks, Stationary Driers, Stationary and Gravity Crystallizers	30	5
Mechanical Furnaces, Generators and Stills, Mechanical Driers, Evaporators, Filtration, Mechanical Crystallizers, Bleaching	30	10
Tanks for Cooking, Extractors, Percolators, Nitrators, Electrolytic Cells	30	20
CLOTH PRODUCTS:		
Cloth Inspection	2000	30 to 300
Cutting	300	30 to 300
Sewing	500	30
Pressing	300	30 to 100
DAIRY PRODUCTS:		
Fluid Milk Industry—		
Boiler Room	30	10
Bottle Storage	30	10
Bottle Sorting	50	50
Bottle Washers	300	300
Can Washers	30	20
Cooling Equipment	30	20
Filling: Inspection	70	50
Gages (on face)	50	30
Laboratories	100	50
Meter Panels (on face)	50	30
Pasteurizers	30	20
Separators	30	20
Storage Refrigerator	30	10
Tanks, Vats		
Light Interiors	20	10
Dark Interiors	100	100
Thermometer (on face)	50	30
Weighing Room	30	10
Scales	70	30
ELECTRICAL EQUIPMENT MANUFACTURING:		
Impregnating	50	30
Insulating: Coil Winding	100	100
Testing	100	50

(Research continued page 58)

This tough, rugged chain tape is justifiably called a "drag tape". It withstands the rigors of daily field use in all kinds of terrain. It outlasts most other tapes because . . .

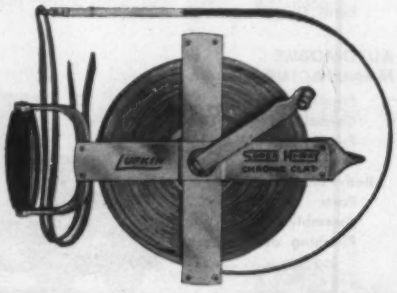
It Has Raised Markings and protective borders that are a part of the actual tape and will last as long as the tape itself.

The Line Is 5/16" Wide of special analysis steel that resists kinking and breaking.

It Is Chrome Clad®, an all-metal finish. The line is built up with a series of electroplatings, with a final hard satin-chrome finish that is resistant to abrasion, rust and corrosion.

It Is Easier To Read. The raised markings stand out sharply against the jet-black background; cannot be obliterated by mud and dirt.

The SUPER HI-WAY Drag Tape is furnished in 100, 200 and 300 foot lengths, either with or without reels. Two leather end thongs and a chainman's conversion rule are supplied with each tape. Choice of three styles of end markings.



THE LUFKIN RULE COMPANY
TAPES • RULES • PRECISION TOOLS
SAGINAW, MICH. • MIDDLETOWN, N.Y. • BARRIE, ONT.

. . . Better lighting standards

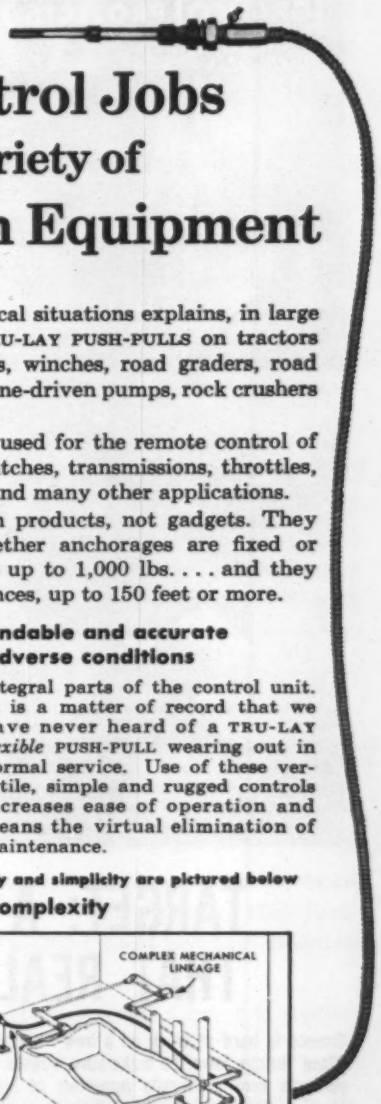
EXTERIOR AREAS:		
Entrances—Active (Pedestrian and/or Conveyance)	5.0	2
Inactive (Normally Locked, Infrequently Used)	1.0	0.5
Vital Locations or Structures	5.0	2.0
Building Surrounds	1.0	0.5
Active Shipping Area Surrounds	5.0	2.0
Storage Areas—Active	20	–
Storage Areas—Inactive	1	–
Loading and Unloading Platforms	20	–
FOUNDRIES:		
Annealing (furnaces)	30	10
Cleaning	30	20
Core making (fine)	100	50
Core making (medium)	50	25
Grinding and chipping	100	30
Inspection (fine)	300	100
Inspection (medium)	100	30
Moulding (medium)	100	50
Moulding (large)	50	30
Pouring	50	10
Sorting	50	10
Cupola	20	10
Shakeout	30	10
INSPECTION:		
Rough	50	20
Medium	100	50
Fine	500	100
Extra Fine	1000	200
MACHINE SHOPS:		
Rough Bench and Machine Work	50	20
Medium Bench and Machine Work, Ordinary Automatic Machines, Rough Grinding, Medium Buffing and Polishing	100	50
Fine Bench and Machine Work, Fine Automatic Machines, Medium Grinding, Fine Buffing and Polishing	500	100
Extra Fine Bench and Machine Work, Grinding—Fine Work	1000	200
MATERIALS HANDLING:		
Wrapping, Packing, Labeling	50	
Picking Stock, Classifying	30	
Loading, Trucking	20	
Inside Truck Bodies & Freight Cars	10	10
PACKING AND BOXING	30	10
PAINT SHOPS:		
Dipping, Simple Spraying, Firing	50	20
Rubbing, Ordinary Hand Painting and Finishing		

needed

Art, Stencil and Special Spraying	50	20
Fine Hand Painting and Finishing	100	50
Extra Fine Hand Painting and Finishing (Automobile Bodies, Piano Cases, etc.	300	100
PLATING	30	10
POLISHING AND BURNISHING	100	20
SHEET METAL WORKS:		
Miscellaneous Machines, Ordinary Bench Work	50	20
Presses, Shears, Stamps, Spinning, Medium Bench Work	50	20
Punches	50	25
Tin Plate Inspection, Galvanized	200	50
Scribing	200	100
STAIRWAYS, WASHROOMS AND OTHER SERVICE AREAS	20	10
STORAGE ROOMS:		
Inactive	5	1
Active		
Rough Bulky	10	5
Medium	20	10
Fine	50	20
TESTING:		
General	50	20–30
Extra Fine Instruments, Scales, etc.	200	100
WELDING:		
General Illumination	50	30
Precision Manual Arc Welding	1000	–
WOOKWORKING:		
Rough, Sawing and Bench Work	30	30
Sizing, Planing, Rough Sanding, Medium, Machine and Bench Work, Glueing, Veneering, Cooperage	50	50
Fine Bench and Machine Work, Fine Sanding and Finishing	100	100
ART GALLERIES:		
General	30	10
On paintings (supplementary illum.)	30	50
On statuary and other displays (minimum)	100	
HOTELS:		
Auditoriums		
Assembly only	15	10
Exhibitions	30	30
Dancing	5	5
Bathrooms		
Mirror	30	40

(Research continued page 60)

TRU-LAY *flexible* PUSH-PULLS FOR Remote Control Jobs on a great variety of Construction Equipment



Adaptability to all sorts of mechanical situations explains, in large measure, the wide-spread use of TRU-LAY PUSH-PULLS on tractors and their accessories, power shovels, winches, road graders, road oilers, dump trucks, snow plows, engine-driven pumps, rock crushers and other construction equipment.

These dependable Push-Pulls are used for the remote control of hydraulic and air valves, brakes, clutches, transmissions, throttles, chokes, governors, power take-offs, and many other applications.

TRU-LAY PUSH-PULLS are precision products, not gadgets. They provide positive remote-action whether anchorages are fixed or movable . . . for light loads or loads up to 1,000 lbs. . . . and they are effective over short or long distances, up to 150 feet or more.

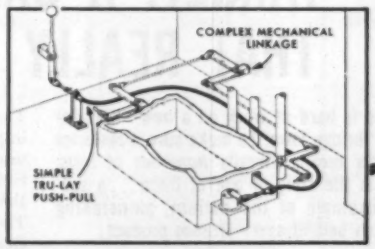
TRU-LAY PUSH-PULLS are dependable and accurate even under the most adverse conditions

They perform effectively under extremes of heat or cold . . . from jet engine temperatures to 70° below zero F. The inner, working member (lubricated for life during assembly) is fully protected by the tough, flexible conduit. Abrasive dusts, dirt and moisture are sealed out. Fittings are cold-swaged to make them integral parts of the control unit. It is a matter of record that we have never heard of a TRU-LAY *flexible* PUSH-PULL wearing out in normal service. Use of these versatile, simple and rugged controls increases ease of operation and means the virtual elimination of maintenance.

Advantages of Tru-Lay Push-Pull flexibility and simplicity are pictured below

Simplicity vs Complexity

Compare the TRU-LAY PUSH-PULL cable in illustration with the mechanical linkage. PUSH-PULLS are simple, have but one moving part, are noiseless and give lifetime service accuracy. Linkages are complex, made of many parts; they wear at many points. Their use brings increased backlash, lost accuracy and vibration rattles.



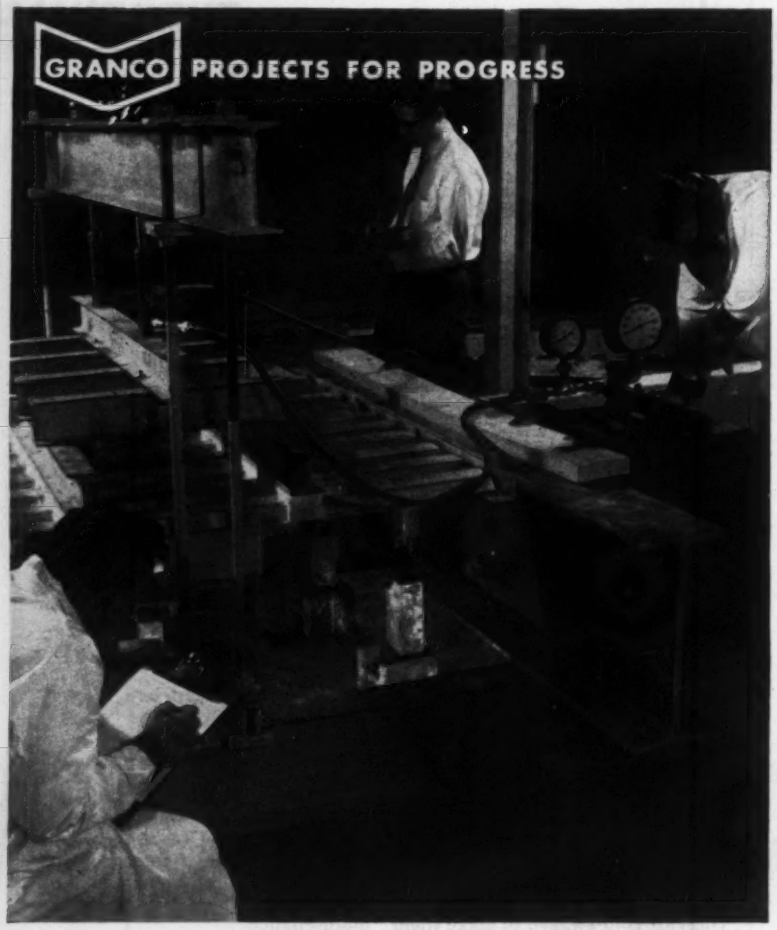
"Solid as a rod but flexible as a wire rope" is a good description of TRU-LAY PUSH-PULL REMOTE CONTROLS. This flexibility makes it possible to snake around obstructions . . . permits the ideal arrangement of all control elements . . . greatly simplifies installation of controls by reducing the number of working parts . . . damps out noise and vibration. Versatile, accurate, adaptable, rugged . . . they are the ideal remote controls for construction equipment.

Bulletin DH-461 will answer your further questions. Write for a copy without obligation

ACCO

Automotive and Aircraft Division
AMERICAN CHAIN & CABLE

601-F Stephenson Bldg., Detroit 2
2216-F South Garfield Ave., Los Angeles 22 • 929-F Connecticut Ave., Bridgeport 2, Conn.



TARGET: A BRIDGE FORM THAT REALLY PERFORMS

Granco is hard at work on a new "Stay-In-Place" bridge form. To make sure it performs perfectly means literally *hundreds* of tests. Here is the story of one of them... a specific example of the patient, painstaking research behind *every* Granco product:

Above, Granco engineers test the strength of both a new permanent steel form for concrete bridge slabs and the support assembly that secures these forms to bridge framing.

To do the job accurately required the construction of a complete bridge section! With a heavy-gage, "stay-in-place" form fitted between bridge stringers (and resting on the support assembly), a hydraulic jack applies increasing loads to the top of the form. Sensitive gauges measure deflections of the form and the support assemblies.

Which type of support assembly works best? Can these forms be easily placed in position to maintain bridge deck elevations? Will the completed assembly prevent concrete leakage?

The positive answers to these and other important questions are now being determined. In developing *any* new product, Granco tests not only its own materials but the *entire* assembly in which they're used. The result: Complete assurance that every Granco product you specify is designed to meet a need... fabricated to do the job... back-stopped by Granco's dependable reputation for performance, economy and safety.

GRANCO®

A Subsidiary of
GRANITE CITY STEEL CO.
Granco distributors in more than 100 principal cities

. . . Hotel lighting

General	10	10
Bedrooms		
Reading (casual periods)	30	30
Writing (casual periods)	30	30
Mirrors (dresser & dressing table)	20	20
General	10	10
Corridors and stairs	15	10
Dining Areas (see Restaurants)		
Elevators	15	
Entrance Foyer	30	
Front Office	50	
Kitchen (see Restaurants)		
Laundry		
Washing	30	40
Flat ironing work	30	40
Machine Press Finishing	50	40
Linen Room—Sewing	70	20–150
General	15	20
Lobby		
Commercial hotel	20	20
Residential hotel		
Architectural Environment	10	20
Reading & Working Area	30	20
Marquee		
Dark surroundings	30	–
Bright surroundings	50	–
RESTAURANTS:		
Lunch rooms, cafeterias, Dining areas—intimate type	3–10	10
Cleaning	20	10
Leisure type	15–30	10
Quick Service type	50–100	10
Food displays—twice the general level but not under	50	50
Service areas (see commercial kitchens)		
Kitchen, commercial		
Inspection, checking & pricing	70	20
Other areas	30	20
OFFICE LIGHTING:		
Cartography, Designing, Detailed Drafting	200	50
Accounting, auditing, tabulating, reading poor reproductions, rough layout drafting	150	50
Regular office work, reading good reproductions, reading or transcribing handwriting in hard pencil or on poor paper, active filing, index references, mail sorting	100	30
Reading or transcribing handwriting in ink or medium pencil on good quality paper, intermittent filing	70	30
Reading high contrast or		

(Research continued page 65)

PRECAST SEAT BEAMS SPEED COMPLETION OF BALL PARK

Seat beams were anchored by welding plates on seat undersides to plates on grade beams. 1082 seat beams were required.

Weighing approximately 1800 lbs. apiece, they ranged in width from 2'8" to 3' and in length from 13' to 14'.

Contractor for Structure:
Troy B. Hood, Inc.
Spokane, Wash.

Contractor for Excavation, Foundation and Tunnels:
Henry George & Sons
Spokane, Wash.

Manufacturer of Precast Units:
Spokane Concrete Pipe Co.
Spokane, Wash.

Ready-Mix Concrete:
Central Pre-Mix Concrete Co.
Spokane, Wash.

Architect and Engineer:
Culler, Gale, Martell & Norrie
Spokane, Wash.

Joint Owners:
City of Spokane
Spokane County

● Structural work on the new Fairground Park baseball stadium for the "Spokane Indians" did not get underway until February, 1958, yet the job had to be completed by the season's opener on April 29th. This need for fast work, without sacrifice of economy or quality, led to the choice of precast concrete seat beams for this job.

Using Lehigh Early Strength Cement, the manufacturer turned out 44 seat beam sections every day, from 550 lineal ft. of forms. Without the use of High Early Strength concrete, at least double the quantity of forms would have been needed to meet the tight schedule.

This is typical of the advantages of Lehigh Early Strength Cement in modern concrete construction.

With modern construction methods and Lehigh Early Strength Cement, the manufacturer was able to complete casting of the beams for this 8500-seat baseball stadium in less than 5 weeks.

LEHIGH PORTLAND CEMENT COMPANY

ALLENTOWN, PA.

Uses Gulf products to protect $1,000,000 investment in new

GULF MAKES THINGS

"Present-day complexities of road building—not only in competing for the work, but in doing the job with highly expensive and specialized machinery—have made road construction now, more than ever before, a cost accounting business. The number of hours of service we get on these machines can mean the difference between a mere profit and a good profit."

That's how Charles Durham sums up why he uses Gulf fuels and lubricants in his new fleet of earth movers. Durham is project manager for the Clement-Dickerson Companies, joint contractors on two adjacent segments of Highway "I-26" in Newberry County, S.C.

Buys $1,000,000 worth of "Euc's" and "Cats." To do the job, Clement-Dickerson bought four Euclid TS-24's, six Caterpillar DW-21's, four D-8 dozers, four D-9 pushers and four No. 12 graders. Durham's first problem was to set up a systematized maintenance program. Oil change periods recommended by the manufacturers were all different, varying from 100 to 500 hours.

Gets help from Gulf. For help in solving this problem Durham called on Gulf Petro-engineering Service. He and the Gulf men worked out a master lubricating chart—the type of oil, how much, when to change.

"Gulf also gives us help in detecting malfunctioning

equipment because

RUN BETTER!

before it gets out of hand," says Durham. "For example, if a fuel injector were leaking, the crankcase sample would show this by an abnormal fuel dilution."

Gulf can make things run better for you, too. Call your nearest Gulf office, or send for "Contractors' Guide"—the maintenance "bible" for heavy equipment.

GULF

GULF OIL CORPORATION
Dept. DM, Gulf Building, Pittsburgh 30, Pa.

Charles Durham (wearing hat), of Clement-Dickerson, goes over his master lubrication chart with Gulf Representative Lee Daughtridge, Jr. ▶

GP0395

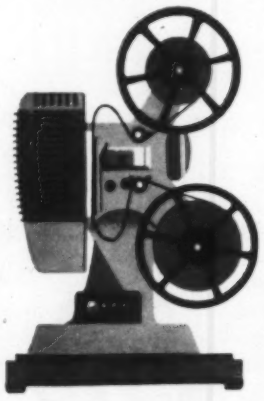
From Fort Ethan Allen, Vt. to Patrick Air Force Base, Fla.

Military installations join the trend to the modern pipe—"K&M" Asbestos-Cement Pressure Pipe with FLUID-TITE Coupling.

Steady, dependable water service—that's a major reason for the trend to "K&M" Asbestos-Cement Pressure Pipe. Once it's installed, you can forget about it. Year after year, the water keeps flowing through . . . clear and unimpeded by tuberculation, corrosion, or electrolysis. The combination of asbestos fibers and portland cement provides a rocklike durability.

K·M
BEST IN ASBESTOS

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA



For the complete story, be sure to see the new "K&M" film, "Lifelines of Your Community." It's the exciting, dramatic story of "K&M" Asbestos-Cement Pressure Pipe from the first step in manufacturing to actual installation. You'll learn how your community can enjoy the finest water service . . . uninterrupted . . . at lowest cost. How you can rid yourself of the headaches of costly, time-consuming repairs and replacement.

"Lifelines of Your Community" is now available for showing at council meetings, engineer or waterworks association meetings, or to other interested groups. All you have to do is write to us. We'll be glad to make arrangements for showing the film . . . and to give you complete information on "K&M" Asbestos-Cement Pressure Pipe.

. . . Office lighting

well-printing material, tasks and areas not involving critical or prolonged seeing such as conferring, interviewing, inactive files and washrooms	30	10
Corridors, elevators, escalators, stairways	20	5
STORE LIGHTING: (Visibility)		
Price tag A—printed	3	–
Price tag B—written in pencil	250	–
Sales slips—pencil writing	65	–
Subtle color patterns	900	–
Clothing—		
light colored pattern	800	–
dark colored pattern	900	–
Linens—white thread on white cloth	3000	–
Package labels—		
good contrast	3	–
poor contrast	65	–
Shirts—sewing at corner of pocket light color	2000	–
Furniture—wood textures	200	–

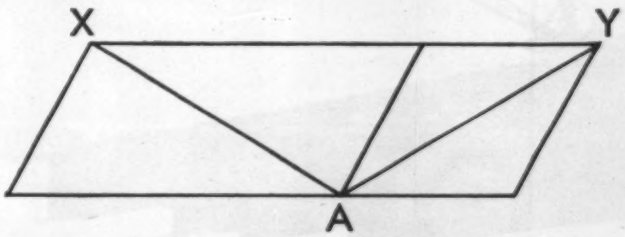
Obviously there are many more tasks that should be studied. However, these are enough to establish that many seeing tasks involved in making buying decisions require illumination in the 200 to 2,000 foot-candle range.

Show Windows		
Daytime lighting		
General	200	200
Feature	1000	1000
Nighttime lighting		
Main business districts —highly competitive		
General	200	200
Feature	1000	1000
Secondary business districts or small towns		
General	100	100
Feature	500	500
Open front stores (see Display Lighting under Store Interiors)		
Store Interiors		
Circulation areas	30	20
Merchandising areas—		
Service stores	100	50
Self-service	200	100
Showcases and wall cases		
Service	200	100
Self-service	500	200
Feature Displays		
Service	500	200
Self-service	1000	500
Stockrooms	30	20

A complete listing of lighting recommendations is being compiled for publication in a new edition of the Illuminating Engineering Society's handbook, which will be released in 1959. A more detailed list of levels compiled to date is available from the Illuminating Engineering Society, 1860 Broadway, New York 23, N. Y., for 20 cents.

TRICKY TRACINGS

Can you tell, at a glance, whether AY is shorter than, longer than, or equal to AX? See answer below.



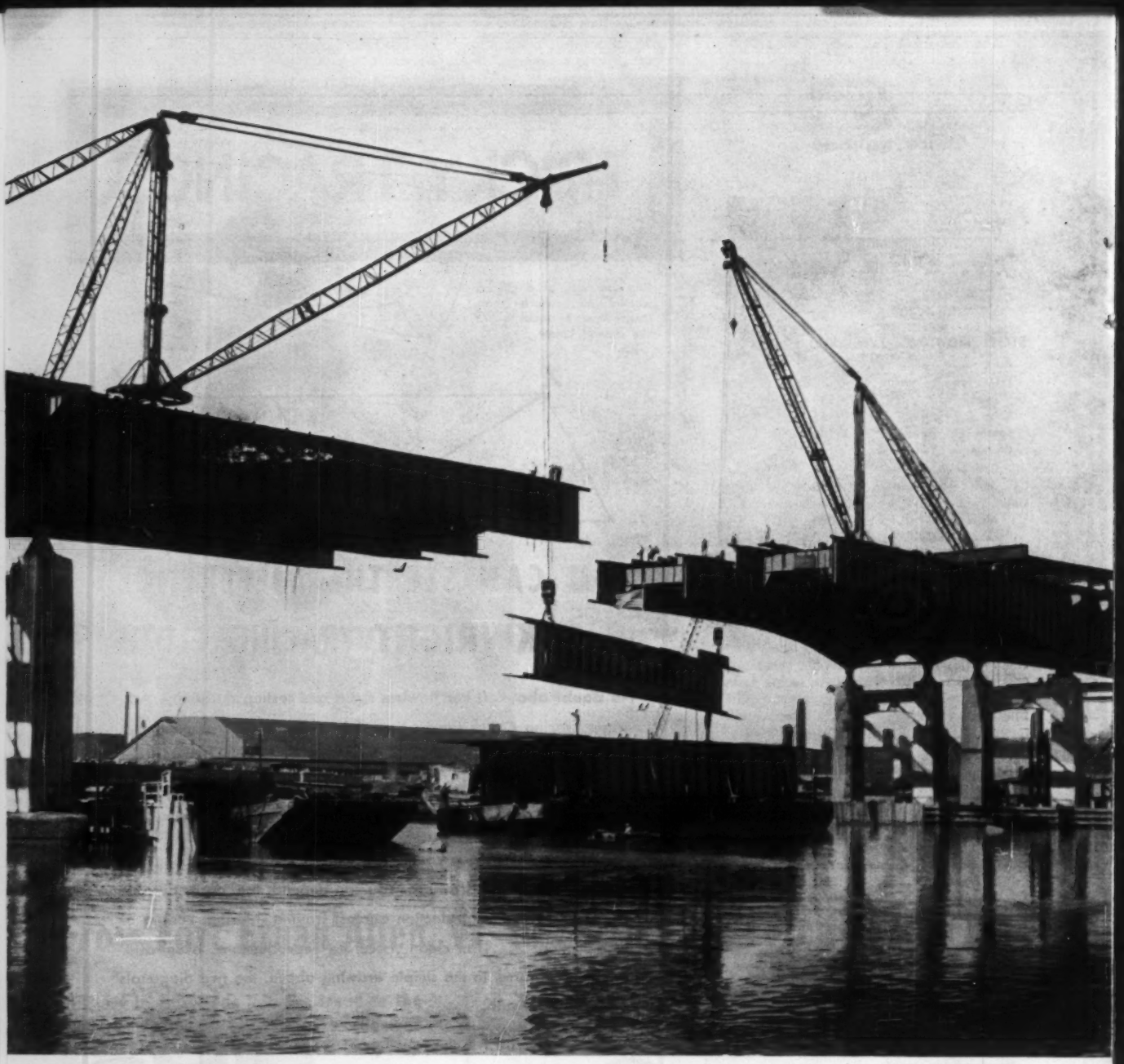
YOU CAN SEE THE DIFFERENCE IN **ARKWRIGHT** TRACING CLOTH

No doubt about it! For flawless finish and lasting durability, Arkwright Tracing Cloths are in a class by themselves. Made to meet Government specifications, these quality-controlled cloths are completely free of pinholes, coarse threads and other imperfections which cause feathering or blobbing.

Roll after roll, you can count on Arkwright's superior working surface for crisp, clean drawings. You can depend, too, on its durable finish for permanent protection against fraying, tearing, curling or discoloration . . . for clean, accurate reproductions, even after repeated erasures. In the simple drawing above, the two diagonals are of equal length.

Ask for Arkwright — the roll with the blue line — the next time you need tracing cloth. Write for free samples today. **Arkwright Finishing Company, Industrial Bank Building, Providence, R. I.**

ARKWRIGHT
Tracing Cloths
AMERICA'S STANDARD FOR OVER 35 YEARS



Where Traffic Now Hums Over New Haven's Waterfront. Scenes like this were so familiar during the building of the Connecticut Turnpike. The one shown here is New Haven's waterfront section as the Quinnipiac River Bridge was nearing completion. The bridge's center span, measuring 387 ft, is the longest continuous plate-girder span in the country.

That big girder being hoisted above the channel weighs 89 tons. The span has four such units, side by side, joined at both ends to 140-ft cantilevered arms. Bethlehem wire rope—tough, flexible, and strong—was given the task of lifting these girders and other heavy loads. The ropes on the two big travelers were Purple Strand grade, Bethlehem's improved plow, which is always recommended for jobs of this nature.

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others:
CONSTRUCTION • EXCAVATING • MINING • QUARRYING • PETROLEUM • LOGGING • MANUFACTURING

BETHLEHEM WIRE ROPE
BETHLEHEM STEEL

SLAG is chipped from welds.

IRREGULAR surfaces are quickly cleaned.

Needles Form Chipping Gun

Dozens of air-impacted needles remove slag from welds, hardened concrete from carriers and scale and rust from metals. There is almost no limit to the surfaces the Von Arx multi-tip chipping gun can clean quickly and efficiently, the manufacturer says.

The needles, which measure 3 mm in diameter and 7½ in. in length, are mounted in a pistol-type air gun. Normal working pressure needed is 88 psi. The clump of needles can follow irregularly shaped surfaces, eliminating the sand or shot blasting cabinet, the maker notes. The Marindus Co., 52 Wall St., New York 5, N. Y.

Diesel Crawler Has Single Stick Shift

Another medium sized diesel crawler tractor has been added to the International Harvester line. Called the TD-15, the model has a 105 hp, six cylinder engine equipped with push-button gasoline conversion starting. For handling ease, the machine has a six speed, single-stick, full reverse transmission. A shuttle bar control permits direction changes without shifting, and a foot decelerator that speeds shifting and shuttle bar operations is available as optional equipment. A full line of matching attachments is also available for the TD-15. Construction Equipment Division, International Harvester Company, 180 North Michigan Ave., Chicago 1, Ill.

New Horizontal Pump Works Inside Pipeline

A submersible pipeline booster pump, designed to operate in a horizontal position within the pipe line itself, is announced by Layne & Bowler Pump Co. The pump, called "Power-Line," is suspended within a pipe section flanged at each end, an integral section of the line. The motor is centered and held by spiders.

The liquid is drawn past the motor and into the bowl assembly, which passes it long at increased pressure. The submersible power cable leads to a terminal box mounted on the outside of the section. From there it runs to a central box.

According to the manufacturer, the unit is noiseless in operation and eliminates the need for pump houses.

Units are available in sizes for 8 to 24 in. pipe. Capacities range from 100 to 4,000 gpm at heads from 50 to 500 ft. Layne & Bowler Pump Co., Los Angeles, Calif.

New Leveling Rod Is More Rigid, More Legible

Keuffel & Esser Co. says its newest Detroit Leveling Rod is more rigid and easier to read. Steel latch mounted clamps join the rod sections together in metal-to-metal contact for more rigid connections.

Easier reading comes from the "Skyline Graduations," a new pattern of black and red markings painted directly on a white, wooden background. The rod, 2 in. wide and ⅞ in. thick, comes in three sections that connect to form a 12½ ft length. Keuffel & Esser Co., Hoboken, N. J.

Ducts in Concrete Formed With Pliable Steel Tubing

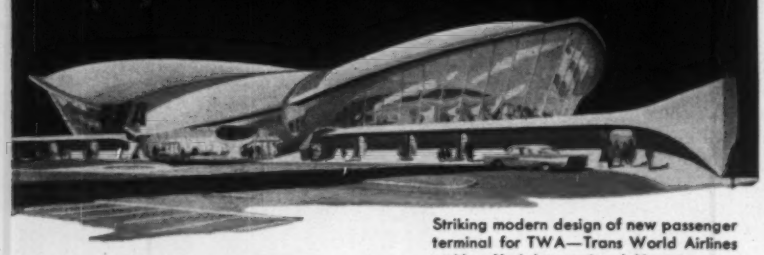
A new flexible tubing is available for forming ducts in concrete, prestressed concrete and concrete piles. The new tubing can be easily bent and can be laid in concrete in a continuous length.

Exterior ribbing gives a good bond with concrete. Smooth interior bore offers minimum resistance to cables and bars and allows free flow of grout.

The new steel tubing requires no special equipment, comes in drums, coils, or straight lengths and is available from ⅜ in. ID to 4 in. ID. Tubing can be cut by hand to any desired length. Kopex Division, Gemmer Manufacturing Co., 6400 Mt. Elliot Ave., Detroit, Mich.

(*New Products continued page 68*)

We keep pace with
MODERN VENTURES!



Striking modern design of new passenger terminal for TWA—Trans World Airlines at New York International Airport.

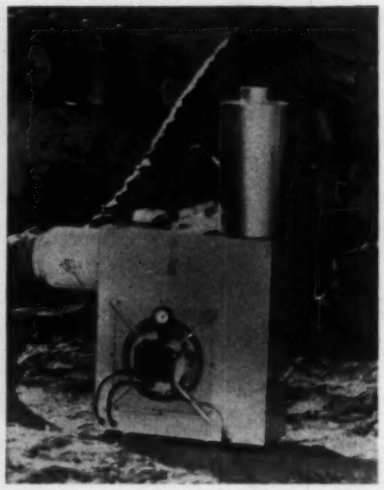
Contractors expect their bonds and bonding service to keep pace with modern projects they cover.

You'll find it that way when you bond with THE FIDELITY AND CASUALTY COMPANY OF NEW YORK.

Decades of broad experience and specialized know-how in all phases of construction bonding is readily available to you through THE FIDELITY AND CASUALTY COMPANY agents. You will find one nearby to serve you.

The Fidelity and Casualty Company of New York
"Writing Bonds Since 1876"

a member company of America Fore Loyalty Group



Gasoline-Burning Heater Delivers Air Through Duct

A gasoline-burning heater, the GHE delivers 1,200 cfm of fresh breathable air through flexible ducts. A blower forces the hot air onto engines, transmissions or other equipment that needs to be thawed.

The 110 lb portable unit can also be used to heat personnel enclosures since all products of combustion are separate from the delivered air.

An optional oil circulator fits on top of the heater and warms 3¼ gal of oil a min to 110 deg F. MORRISON-PELSUE CO., 2256 S. DELAWARE ST., DENVER 23, COL.

New Adjustable Anchor For Aligning Steel Beams

Newly designed for use in dams, flood control works, water storage systems and locks is the EX-3 adjustable anchor. It does the job of a "J" bolt, turnbuckle and double-nuts in the installation and alignment of guide beams and other structural steel.

A dual jacking action is provided by turning the adjusting arm. Zero to 4 in. adjustment is obtained through differential threads on the adjusting arm. The rotor provides adjustability at right angles to the adjusting arm and enables the cap-screw or bolt to make-up anywhere inside the 4 in. circle.

The manufacturer indicates that savings can also be made for the contractor in bolt-setting because of greater flexibility and tolerance in the event of errors.

Both stator and rotor are fabricated from high-tensile ductile iron. ADJUSTABLE ANCHOR CORP., P. O. BOX 385, RICHLAND, WASH.

(*New Products continued page* 70)

Mack Model LVX—22½-ton payload rear dumper.

Mack Model LRX—15-ton payload rear dumper.

Send a man instead of a boy!

Big yardages—smashing impacts—heavy hauls. That's when you need a truck with the guts and go of these famous super-capacity Mack off-highway dumpers. No doubt about it, the man-sized jobs are the Mack-sized jobs.

Check the specs with your Mack representative—but remember, Mack quality begins where specifications leave off. And be sure to ask him about Mack users—names, facts and figures—who are handling their big jobs with these profit-earning big Macks.

Mack Trucks, Inc., Plainfield, New Jersey.
In Canada: Mack Trucks of Canada, Ltd.

For capacities of 30 tons or more where maximum flotation and traction are required, a full line of tandem rear axle Macks is available.

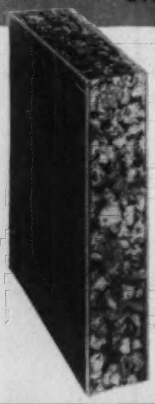
MACK
first name for
TRUCKS

SERVICISED

JOINT FILLERS

for Concrete Paving

Three widely used Servicised Premolded Joint Fillers are briefly described below. Complete details, specifications and samples of any particular type or types are available on request.



KORK-PAK®

An exclusive Servicised development KORK-PAK consists of asphalt and granulated cork formed between two sheets of asphalt saturated paper.

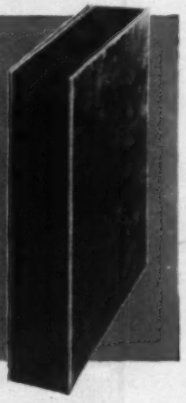
advantages

1. It is non-extruding
2. Recovers more than 80% of original thickness after compression
3. Low moisture absorption
4. Readily handled without breakage
5. Least expensive non-extruding type

recommended uses A general purpose joint filler, particularly for highway work where the top of the joint can be thoroughly sealed with Para-Plastic.

ASPHALT

A composition of asphalt, vegetable fibre and a small percentage of finely divided mineral filler, formed between two sheets of asphalt saturated paper.



advantages

1. Forms an easily compressible cushion
2. Is highly waterproof
3. Low in cost

recommended uses For interior concrete floor construction where black color is not objectionable, and most extensively in the formation of contraction joints in concrete construction where a ¼" or ½" thickness is often used.

FIBER

Cane Fiber Joint Filler is a non-extruding, resilient bituminous material consisting of cellular cane fibers securely bound together and uniformly saturated with a suitable bituminous binder.

advantages

1. It is non-extruding
2. Ordinary carpenter saw can be used for cutting
3. Lowest cost non-extruding type
4. Recovers more than 70% of original thickness after compression

recommended uses

An all-purpose joint filler extensively used for highway work where the upper portion of the joint can be thoroughly sealed with Para-Plastic Bituminous Rubber sealing compound. The complete line of Servicised Joint Fillers is described in the Servicised Catalog. Write for your copy.

SERVICISED PRODUCTS CORPORATION

6051 WEST 65th STREET • CHICAGO 38, ILLINOIS

Tractor-Loader Capacity Is More Than Doubled

Ford's new tractor-loader is said to have 2½ times the lift capacity of any of its previous models. The "Super-Duty" loader has a 2,500-lb capacity, 5,500-lb breakaway and a lift of over 10 ft. Buckets are available up to the 1 cu yd size.

An all power steering system allows turns from straight ahead to full right or full left with less than a complete turn of the steering wheel. A foot throttle permits the operator to over-ride his hand-set speed.

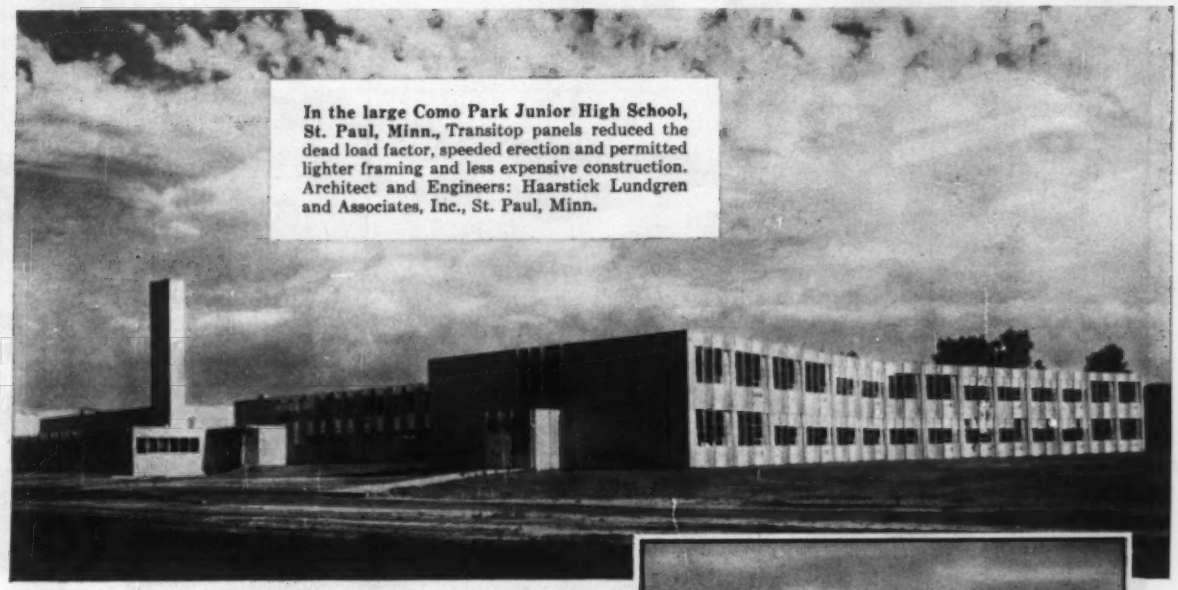
The tractor engine develops 42.5 drawbar hp in the gasoline models. Diesel engine is optional. The tractor comes in two models: a standard 1821, and the 1841 that also has power take-off and an internal hydraulic system with three point linkage for rear-attached equipment. TRACTOR AND IMPLEMENT DIV., FORD MOTOR CO., BIRMINGHAM, MICH.

High Lift Hydraulic Jacks Stretch to 28 and 50 in.

Two high lift hydraulic jacks have been added to the Simplex line. Both have a rated capacity of 25 tons, but, according to the manufacturer, they are designed to lift up to 50% more.

One—the 25H28—will reach a height of 50 in. It has a closed height of 28 in., a 22 in. lift and weighs 125 lb. The other—the 25H22—has a total height of 38 in. This model has a closed height of 22 in., a 16 in. lift and weighs 105 lb.

Both jacks can be operated in either vertical or horizontal positions and are equipped with double lever sockets for easy operation in tight quarters. TEMPLETON, KENLY & CO., BROADVIEW, ILLINOIS.



In the large Como Park Junior High School, St. Paul, Minn., Transitop panels reduced the dead load factor, speeded erection and permitted lighter framing and less expensive construction. Architect and Engineers: Haarstick Lundgren and Associates, Inc., St. Paul, Minn.

The Woodhull School, Lansing, Michigan, built of pre-engineered, modular, expandable units uses Transitop panels to achieve speed and economy in construction. Designed and built by Schoolmaker, Inc., Ann Arbor, Michigan.

For tomorrow's schools...

Johns-Manville PRE-PRIMED TRANSITOP®

building panels cut costs, speed erection, permit colorful curtain wall construction

Johns-Manville Pre-Primed Transitop building panels are being widely and increasingly used by architects and engineers in the construction of modern schools. As a result, educators and taxpayers are enjoying the advantages of quality-built schools with substantial dollar savings in building costs.

Transitop is an insulating structural panel, consisting of an impregnated core faced on two sides with incombustible Asbestos Flexboard® sheets.

Both faces of Transitop panels are pre-primed at the factory, eliminating priming on the job. Thus the use of color, as an expression of decoration, is completed faster at less cost.

Used for panelized curtain wall construction or for interior walls, Transitop panels are available 4′ wide by 8′ up to 12′ in length; in thicknesses of 1⅛″, 1⅛″, 1⅜″, and 2″. In the 1⅜″ thickness they weigh only 4.7 lbs. per square foot. For illustrated brochure "J-M Asbestos Transitop," write to Johns-Manville, Box 158, New York 16, N. Y. In Canada, Port Credit, Ontario.

JOHNS-MANVILLE

JOHNS-MANVILLE JM PRODUCTS

"Less than 13¢ per sq. ft.?"

"Yes, that's all it costs for Pure Copper Concealed Flashing and Waterproofing!"

COPPER ARMORED SISALKRAFT

Pure Anaconda Copper Bonded to Reinforced Kraft

It's *permanent* copper protection . . . for as little as 1/5th the cost of heavy rolled copper . . . yet with all its advantages. Economies like this help you in your drive for lower building costs.

Available in rolls 4″ to 60″ wide. Weights 1, 2 & 3 oz. per sq. ft. See your Lumber & Building Material Dealer, Sheet Metal Supply House or write for information on supply source and free booklet showing application details.

FOR

- **Spandrel beam waterproofing**
- **Waterproofing boiler and shower rooms**
- **Door and window flashing**
- **On parapet walls**
- **As termite shields**
- **Many other protective uses**

AMERICAN SISALKRAFT CORPORATION

Chicago 6 • New York 17 • San Francisco 5

Other Products in the Sisalkraft Line

ORANGE LABEL SISALKRAFT — Reinforced waterproof paper

MOISTOP — Permanent vapor barrier • **SISALITE** — Polyethylene film • **VAPORSTOP** — Rot-resistant vapor barrier

SISALATION — Reflective insulation and vapor barrier • **SISAL-GLAZE** — Plastic glass substitute

SISALKRAFT PRODUCTS ARE AVAILABLE IN CANADA THROUGH ALEXANDER MURRAY & CO., LTD., MONTREAL

Hardy Cross Honored By Engineers

The Gold medal of the British Institution of Structural Engineers, awarded only three times in the last 35 years, was bestowed on Prof. Hardy Cross October 29 in Manchester, England, as a part of the fiftieth anniversary celebration of that organization.

One of America's greatest engineering teachers and structural analysts, Professor Cross was chosen for the signal honor "for his outstanding contribution to the science and art of structural engineering during the past 40 years." Now retired and living in Virginia Beach, Va., Professor Cross, who is 73 went to Britian to receive the medal in person.

Professor Cross is most widely known for his development of the structural design procedure called successive approximation, which has had extensive application in analyzing moment distribution in structural frames and in determining flow distribution in pipe networks. In fact, the moment distribution procedure is commonly called the Hardy Cross Method.

Highly regarded also as a teacher, Professor Cross taught structural engineering at the University of Illinois from 1921 to 1937, and then became chairman of the civil engineering department at Yale University. When he was awarded the Lamme Medal in 1944 by the American Society for Engineering Education, he was praised for "his insistence on the great responsibilities of the individual teacher and his scorn of the superficial in education; and for his pre-eminence in building men who are carrying forward his own high standard of straight, hard thinking in the teaching and practice of engineering".

Other recipients of the Institution of Structural Engineers' Gold Medal have been Prof. Henry Adams (1922) and Prof. J. F. Baker (1953), both members of the Institution, and Eugene Freyssinet of France (1957). Professor Cross responded to the award of his medal with an address on "The Relation of Structural Mechanics to Structural Engineering."

Gen. Charles G. Holle Retires

America's newest tourist is Major General Charles G. Holle, special assistant to the Army's Chief of Engineers. After 41 years of service Gen. Holle has retired to spend some time touring the country and getting his papers and books in order.

He will continue, however, as a working U. S. member of the St. Lawrence Joint Board of Engineers. He serves on the board as the Secretary of the Army's alternate.

Gen. Holle had been eligible for retirement at any time during the last eight years. But he elected to stay on the job as long as he could and permit the retirement decision to be made by Army regulations.

"I now know," he says, "how difficult it would have been to make the decision myself. The realization of separation comes not as a shock, not as a sadness, but as a sobering thought."

The general can look back on service that included major engineering responsibility on three large waterways: the St.

In the field of
HYDRAULIC DREDGING

GAHAGAN

a leading name for over 50 years

Gahagan Dredging Corporation,
90 Broad St., New York 4, N. Y.
Write, wire or phone Whitehall
3-2558. Cable "Walgahagan".

Kinnear Rolling Doors

Kinnear Steel Rolling Doors *introduced* the **single-shaft torsion spring.** It assures *uniform* spring action . . . *uniform* regulation of operating ease from a **single adjustment wheel.** Many other special features make Kinnear your best door buy! Send for catalog!

KINNEAR ROLLING DOORS
Saving Ways in Doorways

The KINNEAR Mfg. Co.
1820-40 Fields Ave., Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.

9:15 Shooting Cationic Bitumuls

9:20 Cover-stone is spread

9:25 Tandem rolling of cover-stone

"Flusher" test proves...

CATIONIC BITUMULS

IS YOUR BEST INSURANCE AGAINST SUDDEN SHOWERS

9:30 Flushing the finished Surface Treatment

Recently, we announced the availability of a new product:

CATIONIC BITUMULS.

We talked of adaptability to "difficult" aggregate; rapid set; resistance to early rains.

Since then, we have put this new material to many rigorous tests on actual jobs all over the country. We needed rain to show, dramatically, how Cationic Bitumuls protected new paving and surfacing against sudden showers. When we couldn't **get** rain we **made it!**

CONSTRUCTION DATA:

On a very revealing test in Long Beach, California, for instance, we used a street flusher to simulate heavy rain. On 1,100 ft. of 72-ft. wide street pavement, various sections were blocked out to provide "control" testing. These sections were "shot" with both regular grades and Cationic Bitumuls; were covered and rolled in rapid sequence. **Within 15 minutes after application of the binder,** the street flusher (as shown above) "watered" these sections with the equivalent of a heavy rain. The sections were then opened to traffic.

RESULTS:

The sections sealed with Cationic Bitumuls retained practically all cover-stone. As expected, the regular grade of emulsified asphalt "washed-out" under this severe test and most of the stone was lost under early traffic.

Many years of research, testing and development work have gone into the production of Cationic Bitumuls. This product offers two distinct advantages to the road building and pavement maintenance industries: it coats almost **all** aggregates, even those usually regarded as "difficult"; and it extends the normal working season.

It will pay you to get all the facts on NEW Cationic Bitumuls. Just call our nearest office.

American Bitumuls & Asphalt Company

320 MARKET, SAN FRANCISCO 20, CALIF.
Perth Amboy, N. J.
Baltimore 2, Md.
Cincinnati 38, Ohio
Atlanta 8, Ga.
Mobile, Ala.
St. Louis 17, Mo.
Tucson, Ariz.
Portland 8, Ore.
Oakland 1, Calif.
Inglewood, Calif.
San Juan 23, P. R.

BITUMULS® Emulsified Asphalts • CHEVRON® Paving Asphalts • LAYKOLD® Asphalt Specialties

Lawrence Seaway, the Lower Mississippi River and the Panama Canal.

Gen. Holle has been the top-ranking representative of the Chief of Engineers for the past 3½ years, and he has been instrumental in guiding construction of the St. Lawrence Seaway.

He was chairman of the Board of Engineers for Rivers and Harbors, the Corps agency that reviews proposals for rivers and harbors projects and makes recommendations to the Chief of Engineers with respect to their engineering and economic justification. And he served as President of the Beach Erosion Board.

From June 1955, to November 1956, as special assistant to the Chief of Engineers, Gen. Holle was Deputy Chief in charge of military and civil works construction programs aggregating more than $1.5 billion annually. This included construction of air bases, military facilities and other defense works stretching virtually around the world.

A native of Cincinnati, Ohio, Gen. Holle was commissioned in the Corps of Engineers in 1920 upon graduation from the U.S. Military Academy. His first assignment was as an engineer officer on the staff of the Governor of the Panama Canal Zone and President of the Panama Canal Co.

When this waterway gained strategic importance during World War II, he returned as assistant engineer of maintenance and received the Legion of Merit for outstanding service. Back at the canal again in 1948-49, he served as engineer of maintenance.

He held three key positions in connection with the development and operation of the Mississippi River waterway and related flood-control improvements. In 1930, he was made assistant to the District Engineer at Vicksburg, Miss. Two years later he became assistant to the Lower Mississippi Valley Division Engineer and assistant to the President of the Mississippi River Commisson.

He returned to the lower Mississippi in 1949 to serve as District Engineer at New Orleans. There he had charge of major navigation and flood-control improvements and supervised a section of the Gulf Intercoastal Waterway.

Prior to assignment as Deputy Chief of Engineers for Construction in 1955, he spent two years as South Atlantic Division Engineer at Atlanta, Ga.

Careers

Public Works

Cyril D. Jensen has been made director of research and testing for the Pennsylvania Department of Highways. He is on leave of absence from Lehigh University where he is a professor of civil engineering and chairman of the soil mechanics division of Fritz Engineering Laboratory.

W. R. Eaton, hydraulics engineer with the Water Resources Division of the U. S. Geological Survey, has been appointed Branch Area Chief in charge of surface water activities in the mid continent states with headquarters at Chattanooga, Tenn.

D. S. Wallace, hydraulics engineer with the Water Resources Division of the U. S. Geological Survey, has been appointed Branch Area Chief for surface water in the Atlantic Coast States with headquarters at Arlington, Va.

Associations

Byron C. Bloomfield becomes the first Executive Director of the newly-formed Modular Building Standards Association, Washington, D. C. He was former secretary for professional development of the American Institute of Architects and taught architecture at the University of Colorado.

Wallace R. Harper will serve as assistant executive vice president of the American Institute of Steel Construction. He is a former vice president of Pittsburgh Plate Glass Co.

Business

John Q. A. Greene has retired as executive vice-president after a 36 year career with the Gunite Concrete and Construction Co., Kansas City, Mo. As of January 1, 1959 he will become the West Coast representative of the firm, with offices in Los Angeles.

Bertram W. Goodenough, Glenn F. Sudman and **S. Raymond Overholser** have formed the partnership of Goodenough, Sudman and Overholser, Inc., consulting engineers, in Sacramento, Calif.

Irving L. Lazere has been elected executive vice president of Psaty & Fuhrman, Inc., New York City contractor. He is vice president of Lazere Construction Corp., New York City, and former president of the Public Building Contractors Association and the Building Contractors' and Mason Builders' Association.

Charles F. Hill has been named to succeed **Charles J. Davis** as general manager of the Massey-Ferguson Industrial Division, Massey-Ferguson, Inc.

E. T. Casler has accepted appointment as executive consultant of Wellman-Lord Engineering, Inc., chemical and industrial plant contractors, Lakeland, Fla.

Robert A. Williamson has been promoted to chief structural engineer for Holmes & Narver, Inc., Los Angeles engineers and contractors.

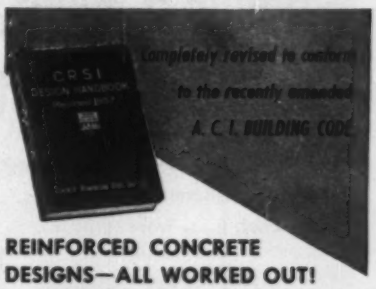
Start each day faster with Clayton SUMMERAIRE

Draglines, tractors, trucks and other power equipment make money only when working. Avoid slow starting on cold mornings by preheating with the Clayton SUMMERAIRE portable heater. Dozens of other on-the-job uses; thawing aggregates, drying out masonry construction, paint and plaster; curing concrete; heating semi-enclosed work areas. Two sizes and several models; 120,000 to 375,000 BTUs per hr., electric and gasoline drive. Write for catalog and name of nearest dealer.

Clayton Manufacturing Co., Dept. J
Box 550, El Monte, California

ORDER FROM YOUR EQUIPMENT DEALER

DESIGN HANDBOOK



REINFORCED CONCRETE DESIGNS—ALL WORKED OUT!

No more algebraic formulas or calculations to make. Simply locate the table covering the member you are designing, apply span and load requirements, and then *read off directly* concrete dimensions and reinforcing steel data. Follows the latest codes and practices. Send check or money order for your copy, today.

Prepared by The Committee on Engineering Practice

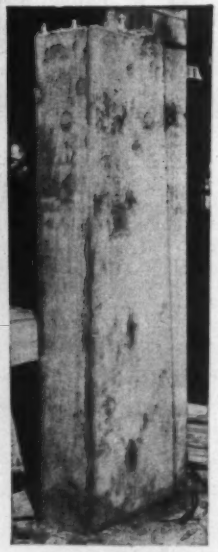
OVER 450 PAGES $6.00 POSTPAID

CONCRETE REINFORCING STEEL INSTITUTE

38 S. Dearborn St., (Div. D) Chicago 3, Illinois

These forms tied in 5 minutes by two men... in less than 10 minutes by one man.

Stripped in moments by one man. No form clamps to move.



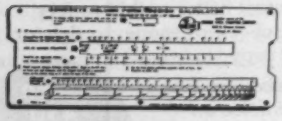
Stripped form is smooth, no bulge. Saves finishing time.

Concrete column forms tied in 5 minutes with Signode steel strapping

The Signode way reduces costs by as much as 33% in strapping forms for concrete columns and bridge piers. On this job, the forms for each floor were built in a central location, strapped in 5 minutes each, and lowered to the floor below over the reinforcing rods.

You can use the strapping and tools in many other money-saving ways...to reinforce scaffolding and to bundle materials, for example. The Signode man near you can save you time in getting started quickly with the right tools and strapping. Call him today or write.

Calculator simplifies concrete column form design



Your guide to proven, economical designs for concrete column forms. Shows strap sizes and spacings to use on forms up to 65" diagonal or diameter...illustrates six tested truss designs. Offer limited to architects, contractors, engineers. Mailed promptly on receipt of $1.00.

SIGNODE STEEL STRAPPING CO.

2682 N. Western Avenue, Chicago 47, Illinois
Offices Coast to Coast.
Foreign Subsidiaries and Distributors World-Wide
In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto

Legal

Lateral Support

Rights of adjoining owners protected in excavation work

An excavator is liable for property damages that flow from his removal of the lateral support of an adjoining owner.

In a recent Massachusetts case, a sewer was being excavated next to the tracks of a railroad. The trench filled with water and silt despite the contractor's efforts to block it out with steel sheathing. The track bed settled and the railroad property was damaged.

The railroad sued the contractor and recovered damages. The court found that the contractor had failed to take the proper steps to protect the railroad property. This judgment was affirmed on appeal.[1]

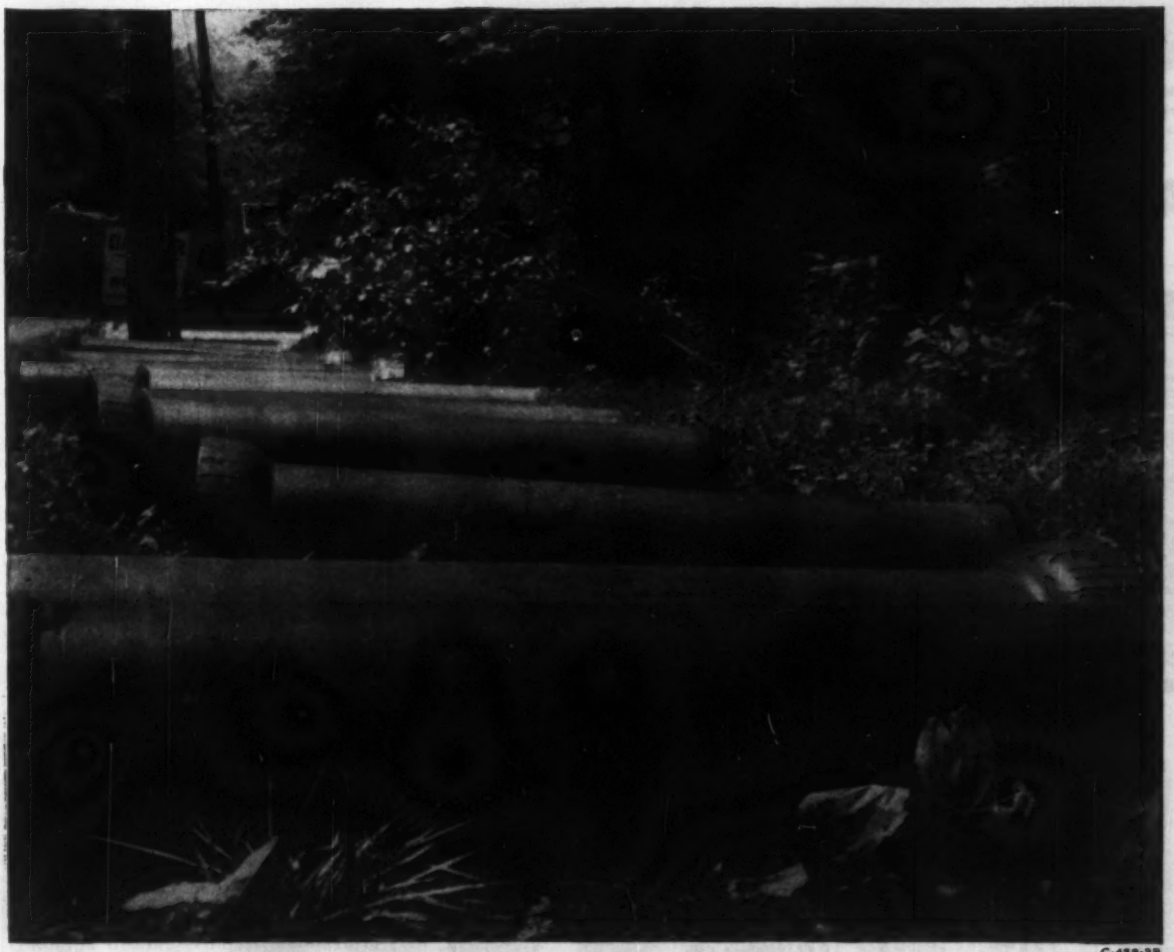
The appellate court stated: "It is well settled law that for an excavation causing an injury to the soil of an adjoining owner in its natural state an action will lie, but that no recovery will be allowed in the absence of negligence or a direct trespass for an injury to structures by excavating the adjoining land (citing numerous cases and authorities). Irrespective of the absolute liability for damage to the soil in its natural condition, an excavator owes a duty to an adjoining landowner to use reasonable care in his operations, and if as a result of his failure to use reasonable care he removes the lateral support of an adjoining owner he will be liable for all damages proximately caused (citing numerous cases). The same obligation is imposed upon the excavator in withdrawing a mixture of silt and water as if he were removing only sand. Cabot v. Kingman, 166 Mass. 403, 44 N.E. 344, 33 L.R.A. 45; Am. Law of Property, Section 28.46."

In some municipalities, certain statutes have been enacted to protect the owners of adjoining property. Thus, in New York City, the Administrative Code provides that where one makes an excavation more than 10 feet below the curb, the party who causes such excavation to be made must take the necessary steps to protect the safety of any building that might be affected.

Where work is done in a city street that is not for the improvement of the street but to promote a business enterprise like the building of a subway, a property owner has the right to the lateral support of the land in the street, even though he does not own any part of the street and is entitled to recover

NEW Compression Joints save installation time

The Clay Pipe Industry now offers you the fastest joints ever developed. They're factory-made and ready to install . . . with less manpower than ever before. But that's not all! The Clay Pipe itself now comes in new longer, *stronger* lengths to make installation even faster. For years Clay Pipe has been recognized as the world's longest-lasting pipe. And now it's the fastest and easiest to install! For further details about this revolutionary new development, write the NCPMI office nearest you.



C-458-39

Vitrified **CLAY PIPE** *Never Wears Out*

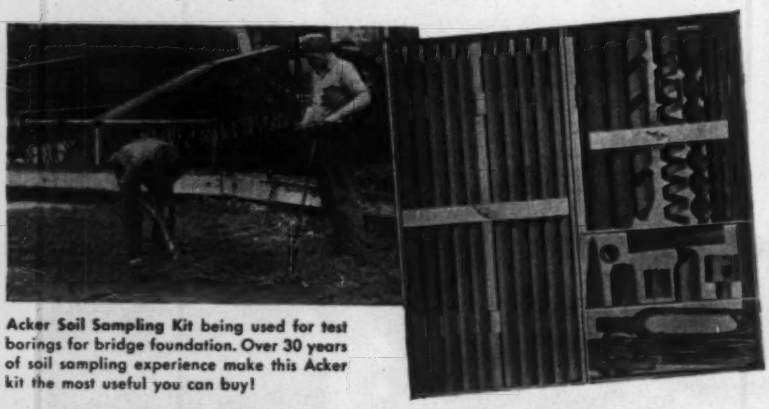
NATIONAL CLAY PIPE MANUFACTURERS, INC. 1820 N Street, N. W., Washington 6, D. C.
311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio • 703 Ninth & Hill Bldg., Los Angeles 15, California • Box 172, Barrington, Illinois • 206 Mark Bldg., Atlanta 3, Georgia

DON'T GUESS!

use an ACKER SOIL SAMPLING KIT for accurate sub-surface information

With accurate sub-soil information, *you avoid* costly trouble later on. And, what better way to get this information than with a portable, easy to use Acker Soil Sampling Kit. For here is a versatile collection of twelve soil sampling tools packed in a handy steel kit that can be carried in any car.

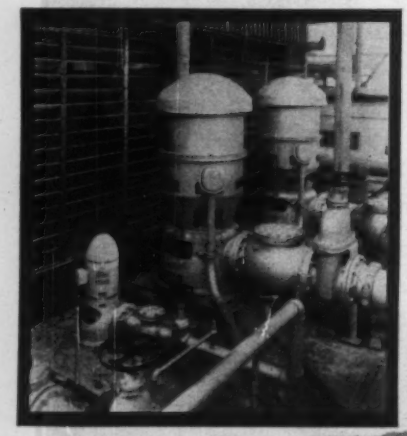
Write today for prices and Bulletin 26ENR.



Acker Soil Sampling Kit being used for test borings for bridge foundation. Over 30 years of soil sampling experience make this Acker kit the most useful you can buy!

ACKER DRILL CO., Inc. 725 W. Lackawanna Avenue Scranton, Penna.

a complete line of Diamond and Shot Core Drills, Drilling Accessories and Equipment



Competitive Bids prove EFFICIENT JOHNSTONS THE BEST BUY IN VERTICAL PUMPS

Here's proof of Johnston's superiority —an evaluation of bids made recently by Johnston and five other prominent manufacturers of vertical pumps.

All size verticals: 4 to 30 inches; 1½ to 1000 hp; 25 to 10,000 gpm.

Primary water supply; sump, condenser, line and booster pumping; circulating, dewatering.

Volatile fluid handling —and many other uses

Send for complete bulletins:

Mfg.	Est. Power Cost	Over-all Efficiency	Total Cost (incl. power)
Johnston	$88,748	.7863	$108,731
Co. B	90,183	.7724	109,253
Co. C	91,883	.7585	110,460
Co. D	93,477	.7493	112,548
Co. E	93,621	.7406	112,719
Co. F	92,967	.7520	112,966

JOHNSTON PUMP COMPANY
A Division of
The Youngstown Sheet and Tube Company
PASADENA, CALIFORNIA
"The Quality Line since 1909"

Johnston Pump Co.
Bin K, Pasadena, Calif.
Send complete information on industrial applications:
Name_____
Address_____
Firm_____

any damages sustained by the removal of such lateral support.[2]

(1) New York Central R. Co. v. Marinucci Bros. & Co., 149 N.E. 2d 680, Supreme Judicial Court of Mass., May 5, 1958.

(2) Matter of Rapid Transit R.R. Comrs., 197 N.Y. 81.

Contractors Should Read Contracts Before Signing

A contractor is presumed to know what a contract says when he signs it. He can't later avoid one of the contract obligations on grounds that the contract contained a mistake, if the mistake is one he made and if he wasn't defrauded by the other party.

The following New York case shows how the rule works.

A syndicate was organized to build a hotel and night club in Las Vegas and employed the Stone Construction Co. as supervising contractors for the job. A contract was entered into between Johns-Manville Co. and Stone for the installation of rock cork. The contract was prepared by Stone and described Stone as general contractor and obligated it to pay for the work.

After the work was completed there was a balance of $10,493 due Johns-Manville and upon failure of Stone to pay, an action was brought against Stone.

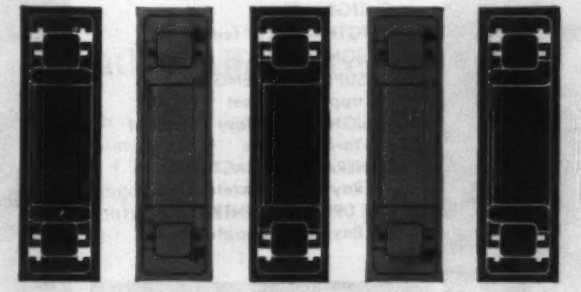
At the trial, Stone claimed that it was acting as agent for the owners and asked that the action be dismissed. However, the application was granted, but this judgment was later reversed on appeal.[1]

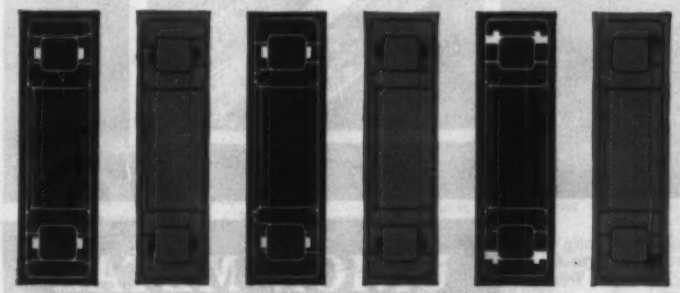
The appellate court stated: "To the plaint that defendants (Stone) never read the documents they caused to be prepared, there is a simple answer. Even one who fails to read documents prepared by another, in the absence of fraud or other wrongful act by the other contracting party, is conclusively presumed to know its contents and to assent to them, if he signs them.

(1) Johns-Manville Sales Corporation v. Stone Construction Co., 169 N.Y.S. 2d 259, N.Y. Supreme Court, Appellate Division, Dec. 17, 1957.

These summaries of court decisions are prepared by I. Vernon Werbin, Esq., New York attorney and licensed professional engineer, who is author of the following books published by McGraw-Hill Book Company, Inc.: *Legal Phases of Construction Contracts; Legal Guide for Contractors, Architects and Engineers;* and *Legal Cases for Contractors, Architects and Engineers.*

The Type UR-E Tru-Rol segmented-retainer bearing illustrated above, affords adequate precision, performance and life expectancy for most "upper range" commercial-grade applications.

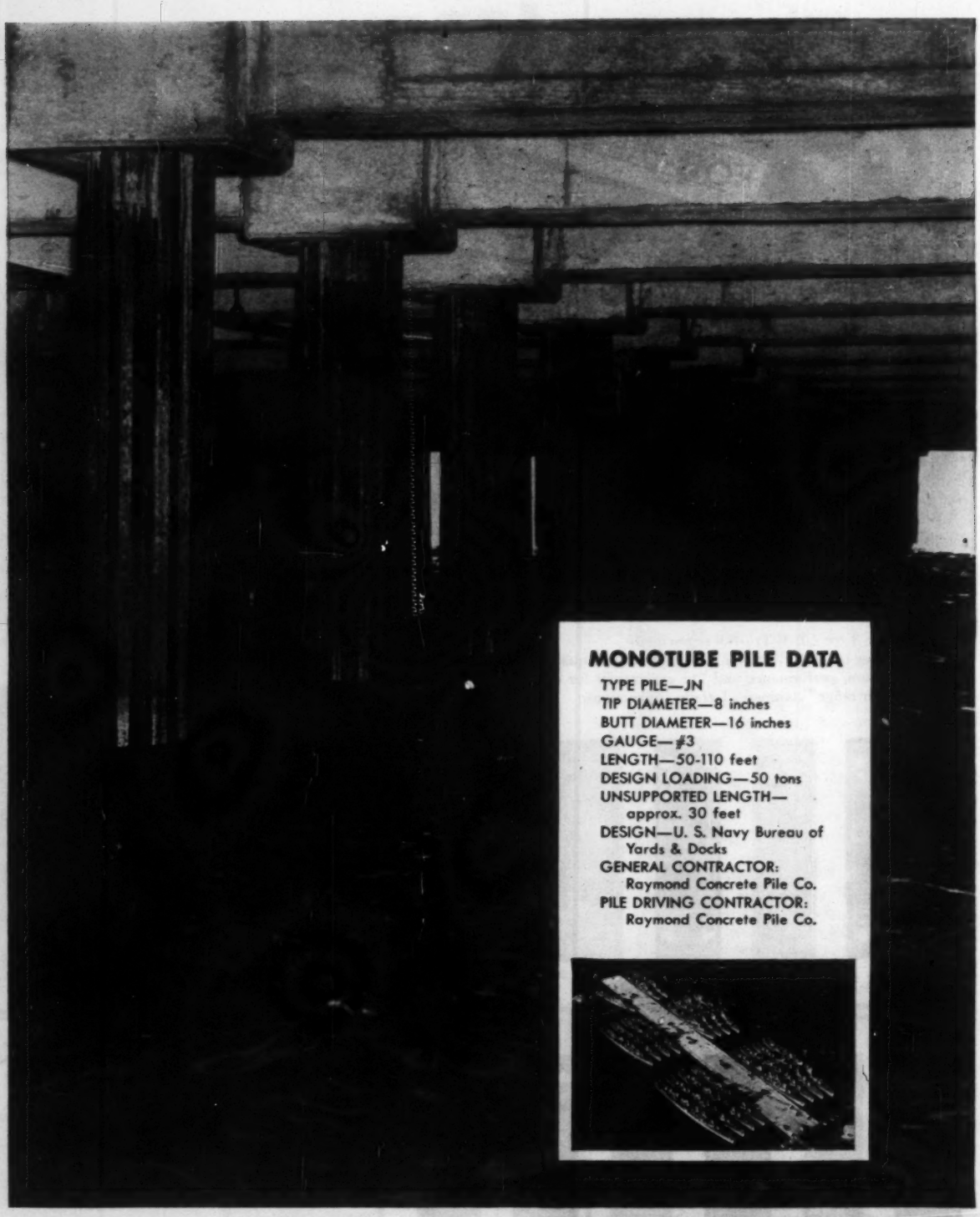




Rollway Tru-Rol Bearings give you "for the job" selectivity in a wide range of applications. They approach the design, precision and quality of bronze-retainer bearings as closely as commercial grade pricing will allow. Internal clearances are close. Rollers are equally spaced to avoid out-of-balance vibration and "pulse". And each is crowned to distribute the load evenly along the full length of the roller. 11 types available in single and double width bearings, in stamped steel retainer, segmented retainer or full roller construction.

Ask a near-by Rollway Service Engineer to detail the quality you should be getting in your "commercial grade" bearings. No cost. No obligation. Write to

ROLLWAY BEARING COMPANY, INC.
586 Seymour St., Syracuse, N.Y.
ENGINEERING OFFICES: Syracuse • Philadelphia
Boston • Chicago • Cleveland • Pittsburgh
Detroit • Seattle • Houston • Los Angeles
San Francisco • Toronto



MONOTUBE PILE DATA

TYPE PILE—JN
TIP DIAMETER—8 inches
BUTT DIAMETER—16 inches
GAUGE—#3
LENGTH—50-110 feet
DESIGN LOADING—50 tons
UNSUPPORTED LENGTH—
approx. 30 feet
DESIGN—U. S. Navy Bureau of
Yards & Docks
GENERAL CONTRACTOR:
Raymond Concrete Pile Co.
PILE DRIVING CONTRACTOR:
Raymond Concrete Pile Co.

STABILITY WITH MONOTUBES . . . ideal as piles with long unsupported lengths in pier work. In the construction of the 1,350-foot U.S. Navy berthing pier, Newport, R. I., piles in excess of 100 feet in length were driven in perfect alignment facilitated by the extreme rigidity of Monotubes.

Tapered, fluted Monotube piles are available in lengths, diameters and gauges to meet every requirement. Write The Union Metal Manufacturing Co., Canton 5, Ohio, for complete information.

UNION METAL

Monotube Foundation Piles

Three Oregon Bridges Will Have . . .

Precast Concrete Decks

With the low bid less than 1% under the second of five bids, on three McKenzie River overflow bridges on the Harrisburg-Eugene Road near Coburg, Ore., the $96,559 award went to Inland Construction Co., Milwaukie, Ore. This averages $8.07 per sq. ft of roadway. Work is for the Oregon State Highway Commission. W. C. Williams is state highway engineer at Salem, Ore., and R. W. Ellison is resident engineer at Eugene.

The bridges will have precast reinforced concrete deck sections on treated timber piling.

Two bridges will each be 114 ft long and the third 171 ft. All spans are 19 ft. Height above ground is approximately 20 ft. Roadway width of each bridge is 30 ft.

Class A concrete requires 6.3 sacks of cement per cu yd.

The contractor furnishes all materials. Truck transportation is available—and the railroad is 2 miles from the site.

Wages on the job range from a high of $2.85 for skilled through $2.60 for semi-skilled to a low of $2.50 for common laborers.

The five bids included:

1C	Inland Constr. Co., Milwaukie, Ore	$96,559
2	Hamilton & Thoms, Eugene, Ore	97,100
5	John L. Jersey, Inc., Portland, Ore	120,415

Bids: 8-26-58 Items	Unit	Quantity	Unit Prices 1C	2
114 ft Bridges (2)				
Remov old bri & maint traf	ea	job	$4,200	$7,000
Treated timber piling..furn				
1 bridge	lf	1,470	1.25	1.25
1 bridge	lf	1,260	1.25	1.25
Treated timber piles..drive	ea	42a	60.00	60.00
Conc, cl A	cy	138a	78.00	60.00
Metal reinforcement	lb	49,500a	0.14	0.13
Exc, uncl channel, 1 bridge	cy	800	1.00	1.00
Treated timber or lumber..Mfbm		6a	300.00	350.00
171 ft Bridge				
Remov old bri & maint traf	ls	job	6,200	10,000
Treated timber piling..furn	lf	1,800	1.25	1.25
piles..drive	ea	60	60.00	60.00
Conc, cl A	cy	195	78.00	60.00
Exc, uncl channel	cy	1,000	1.00	1.00
Metal reinforcement	lb	72,900	0.14	0.13
Treated timber or lumber ip Mfbm		9	300.00	350.00

a Quantity for each bridge

Awarded 9-11-58 Completion schedule: 120 working days
Liquidated damages: $90/day

Bad Weather Allowance in Bridge Contract

Four bids for this bridge job on Tippecanoe County Road, over the Wabash River, 4.5 miles north of West Point, Ind., ranged from $133,072 to $174,809. Contractor Ruckman & Hansen, Inc., Ft. Wayne, Ind., underbid the engineer's estimate by almost 27%, and the high bid by 24%.

Herbert Brunsma & Associates, Lafayette, Ind., is consultant.

The work includes facing and capping the abutments, piers and wing walls; laying a new concrete floor; new stringers and shoes; scraping and painting the existing four 160 ft spans of the steel truss bridge; and 0.271 mile of approach grading and compacted aggregate base surfacing. Roadway width is 14 ft.

Extra completion time is allowed for bad weather, in addition to the 214 day schedule set for the job.

Requirements for Class F concrete are 1.75 bbl of cement per cu yd, and for Class E concrete, 1.25 bbl of cement per cu yd.

The contractor furnishes all materials. Truck and rail transportation is available. The nearest railroad is 4.5 miles from the site.

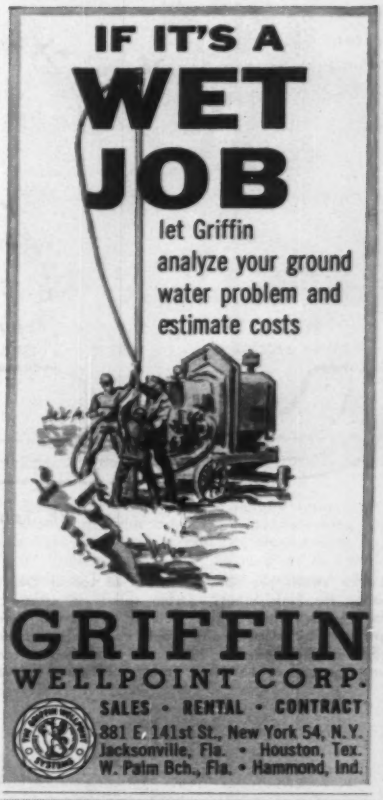
Minimum wages range from a high of $1.55 for skilled, through $1.40 for semi-skilled, to $1.30 for common laborers.

The four bids for the bridge include:

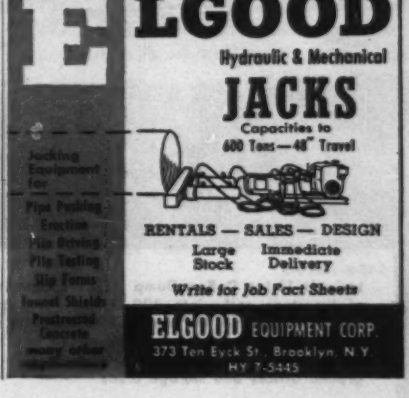
1C	Ruckman & Hansen, Inc., Fort Wayne, Ind	$133,072
2	Lee Pickel Constr. Co., Hillsboro, Ind	159,139
4	Smith & Johnson, Inc., Indianapolis, Ind	174,809
EE	Herbert Brunsma & Asso., Lafayette, Ind	181,818

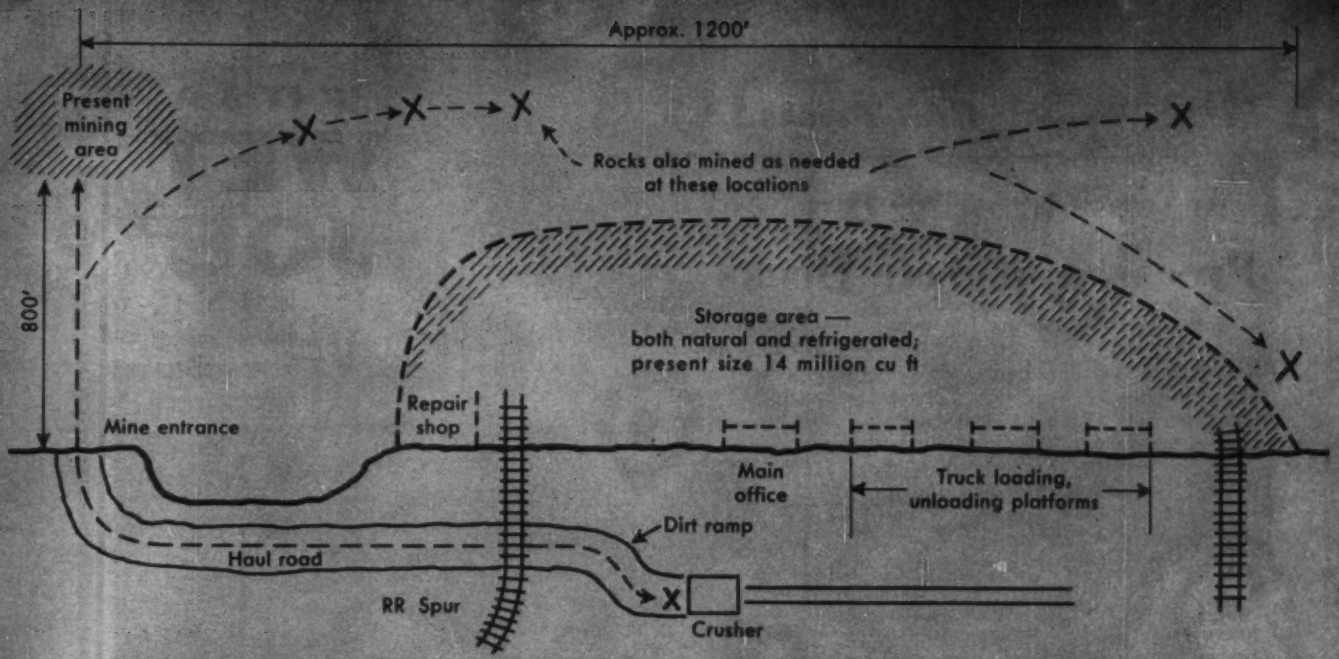
Bids: 7-29-58 Items	Unit	Quantity	Unit Prices 1C	2
Conc, cl F	cy	331	$70.00	$75.00
cl E, above footings	cy	280.9	60.00	65.00
in footings	cy	129.7	50.00	60.00
Steel, reinforcing	lb	72,894	0.13	0.15
structural	lb	113,398	0.173	0.25
Cast iron	lb	4,736	0.40	0.70
Piles, untreated timber..f	lf	800	0.50	0.70
drive	lf	800	2.00	1.00
Equip for driving piles..f	ls	job	500.00	750.00
Excavation, common	cy	5,720	1.00	0.70
Borrow, special	cy	19,900	1.00	0.60
special, grade B	cy	110	4.00	2.25
Mulched seeding	sy	4,425	0.10	0.16
Warning signs	ea	6	50.00	80.00
Barricades, standard, tp A	ea	2	100.00	100.00
Jacking trusses	ls	job	1,500	3,000
Scraping & paintin gstruct	ls	job	3,200	6,250
Railing repairs	ls	job	500.00	400.00
Field fillet weld, 5/16	lf	88	1.25	2.00
3/16"	lf	98	1.25	1.50
Holes, steel..drill	ea	96	1.00	2.00
concrete..drill	ea	18	1.00	3.00
Guard rail, steel beam	lf	1,425	3.50	3.50
Piling, steel sheet	sf	1,048	4.00	5.00
Agg for compacted agg surf	t	1,180	3.50	3.25
Structural steel..cut	si	50	1.00	2.00
Existing struct, remov parts	ls	job	6,144	9,000
Excavation, foundation	ls	job	1,000	3,000

Completion schedule: 214 days, plus allowance for bad weather



CROSSING SLABS
Steel reenforced, edge armored PRECAST CONCRETE. Dimensions: 16½" wide x 6'0" long.
Ideal for industrial plant crossings. Provides strength, durability, smooth riding qualities with minimum maintenance.
WRITE FOR Bulletin 858
PERMACRETE PRODUCTS CORPORATION
1839 South Wall St., Columbus 7, Ohio





Sketch shows present operations of Loring Quarries' mine. Haul distance for Rear-Dumps — from shovel to crusher on top of high dirt ramp — averaged 1320'. Company is currently producing concrete aggregate, bituminous mix, road base, block plant-material, and agriculture limestone. In 1951, the firm began construction of a huge underground cold-storage plant . . . to make use of excavated space resulting from mining out the rock. Present capacity of the cold-storage plant is 14 million cu ft. It is divided into natural and refrigerated compartments. Spur tracks from the main railroad line enter the storage area for easy removal of cargo. In addition to the storage plant, numerous offices and a large, modern repair shop are also located underground — in the mined out limestone cliffs.

Loring's 11-ton D Rear-Dump deposits capacity load of limestone rocks into 300-ton-per-hour primary crusher. Another of the firm's 4 Rear-Dumps is spotted and ready for quick back-up to unload into hopper. Note "beehive" entrances to the company's underground offices and storage areas.

Two empty Rear-Dumps at right return to mine, as loaded machine at left starts haul to crusher. The short-turning 138-hp units are shovel-loaded with shot limestone about 800' inside mine. Says Mine Superintendent Clyde Edmonds, "Rear-Dumps keep us ahead of schedule, because they require less maintenance and repair. These machines do everything asked of them . . . and they're dependable."

Short turns with electric wagon-type steer proved a major advantage in positioning at shovel and hopper, and for maneuvering in all tight spots in mine. With body in travel position, D Rear-Dump makes continuous 180° turn in 24'8" — in dump position in only 18'8". Commented Operator Gary Leach, "This hauler is sure easy to operate and control . . . less tiring than other equipment. Has much better maneuverability."

How Underground Quarry solved haul problem with pivot-steer haulers

Finding the right tool for the job — to insure highest production and lowest operating costs — often is a costly, time-consuming task. Read this report on how a large producer of crushed limestone — Loring Quarries, Inc., Bonner Springs, Kansas — solved a difficult hauling problem with electric-control pivot-steer haulers. Their experience may save you time and money.

Tried two "D's", bought two more

With underground mining operations located beneath limestone cliffs near the Kansas River, Loring Quarries required a hauler that could: (a) work in tight quarters; (b) carry a good load to crushing plant fast, and; (c) be able to cut hauler maintenance and repair costs. A number of machines were tried, but none could meet all requirements.

The firm then purchased 2 LeTourneau-Westinghouse D Tournapulls® with 11-ton Rear-Dumps. Put to work on Loring's tough haul assignment, the results were outstanding. Highly pleased, the firm added 2 more Tournapull haulers within the next two years.

"Very satisfactory"

Four years after purchase of the 1st unit, Mr. E. P. Conlan, Vice President of Loring Quarries, says, "Our experience with D Rear-Dumps has been very satisfactory. We like the fact that 'D's' have no frames to twist and break, no dual tires sticking out into the loading zone to pick up sharp cutting rocks. And, with the electric-control dump, there are no hydraulic lifts to maintain. They're built simply . . . far easier and less expensive to maintain, both mechanically as well as on tires."

Ask for a demonstration

Let us show you how rugged LeTourneau-Westinghouse Tournapull Rear-Dumps can help lower *your* hauling costs. Available in 3 sizes: 11, 22, and 35-ton capacities. Call or write for complete information.

DR-1821-MQJ-2

LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

Materials Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES: • Clay Products, Lime, Plaster, Paint, Roofing: Last, Oct. 30; Next, Nov. 27. • Wage Rates, Building Board, Lath, Insulation: Last, Oct. 30; Next, Nov. 27. • Cement, Aggregates, Ready-mixed Concrete, Asphalt: Last, Nov. 6; Next, Dec. 4. • Iron & Steel Products, Pipe: Last, Nov. 13; Next, Dec. 11.

LUMBER, TIMBER, PLYWOOD—PER M FT., B. M., CARLOAD LOTS F. O. B.

SOUTHERN PINE AND DOUGLAS FIR

All Southern Pine is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)

Ali Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1. Lengths up to 20 ft. (Prices in italics)

	1x8 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	LONG LEAF Y. P. Merchantable grade up to 20 ft. 2x12 Rgh	LONG LEAF Y. P. Merchantable grade up to 20 ft. 12x12 Rgh	PLYWOOD Rail freight increment (See note for base price) ⅜"	PLYWOOD Rail freight increment (See note for base price) ¼"
Atlanta †	$76.00	$79.00	$76.00	$79.00	$81.00	$86.00	$136.00	.....	.....	$121.00	$156.00	$22.32	$27.24
Baltimore 4	95.00	100.00	100.00	100.00	100.00	105.00	114.00	.....	.....	170.00	185.00	25.92	31.60
	103.00g	*108.00g*	*128.00g*	*128.00g*	*128.00g*	*128.00g*	*138.00g*	*$155.00*	*$149.00*				
Birmingham †5	80.00	82.00	75.00	82.00	85.00	90.00	105.00	.....	.....	115.00	160.00	21.78	26.58
	70.50	*70.50*	*70.00*	*73.00*	*73.00*	*88.00*	*75.50*	*70.50*	*70.50*	.....	.....	.....	.....
Boston *****	93.00f	95.00f	99.00f	99.00f	99.00f	100.00a	.....	.....	.....	.....	.....	*$5.92e*	31.60e
	95.00	*95.00*	*109.00*	*109.00*	*109.00*	*109.00*	*129.00*	*129.00*	*152.00*				
Chicago **	110.00	113.00	107.00	121.00	129.00	130.00	125.00	.....	.....	183.00	183.00	22.45	27.37
	110.00	*116.00*	*129.00*	*127.00*	*127.00*	*138.00*	*136.00*	*136.00*	*136.00*				
Cincinnati *	93.00	94.25	86.50	90.50	95.00	102.75	118.00	.....	.....	129.50	127.50	25.00	30.48
	3.75	*96.00*	*96.00*	*102.50*	*98.00*	*114.50*	*127.25*	*127.25*	*127.25*	.....	.....	.....	.....
Cleveland **	91.00	93.00	95.00	97.00	100.00	103.50	.....	.....	.....	.....	.....	25.37	30.93
	.....	.....	*107.00*	*102.00*	*103.00*	*103.50*	*121.00*	*121.00*	*121.00*				
Dallas ‡	74.50k	74.50k	70.00k	70.00k	73.00k	75.50k	120.00k	.....	.....	130.00	125.00	18.72	22.80
Denver *	*Not in stock*		*122.50*	*122.50*	*122.50*	*127.50*	*136.00*	*148.50*	*183.50*			13.92	16.98
Detroit ‡	127.50	130.00	129.75	128.00	133.00	133.00	.....	.....	.....	141.00	.....	25.00	30.48
	136.00	*136.00*	*138.75*	*143.50*	*141.00*	*146.00*	*196.00*	*200.00*	*200.00*	.....	.....	.....	.....
Kansas City 3	120.00	120.00	120.00	120.00	125.00	135.00	.....	.....	.....	.....	.....	16.56	20.16
	120.00	*120.00*	*120.00*	*120.00*	*125.00*	*135.00*	*160.00*	*225.00*	*225.00*	.....	.....	.....	.....
Los Angeles 1	*97.00*	*97.00*	*98.00*	*98.00*	*98.00*	*98.00*	*150.00*	*160.00*	*170.00*	.....	.....	16.61ab	*20.25ab*
Minneapolis 6	*135.00m*	*135.00m*	*140.00*	*140.00*	*140.00*	*140.00*	*185.00*	*185.00*	*185.00*	.....	.....	19.80	24.25
Montreal *b	87.00a	94.00a	87.00a	88.00a	104.00a	125.00a	.....	.....	.....	122.00	122.00	.....	.....
	165.00	*165.00*	*165.00*	*165.00*	*165.00*	*165.00*	*170.00*	*170.00*	*170.00*				
New Orleans †	89.00	89.00	93.00	91.00	90.00	97.00	121.50	.....	.....	151.00	151.00	18.72	22.80
†	*115.00*	*115.00*	*104.50*	*125.00*	*125.00*	*125.00*	*137.50*	*137.50*	*137.50*	.....	.....	.....	.....
New York 2	113.00	114.00	120.00	122.00	122.00	126.00	.....	.....	.....	240.00	250.00	25.92	31.60
	.....	.....	*89.00*	*81.00*	*81.00*	*122.00*	*165.00*	*165.00*	*165.00*				
Philadelphia ‡			Range from 100/120			108/125	108/125			214/224	214/224	28.00	32.00
			Range from 110/140			*115/145*	*125/160*	*164.00*	*164.00*				
Pittsburgh 2	115.00	120.00	130.00	120.00	125.00	130.00	130.00			150.00	185.00	25.92	31.60
	140.00	*120.00*	*140.00*	*160.00*	*160.00*	*160.00*	*220.00*	*185.00*	*185.00*				
St. Louis #	116.00	118.00	128.00d	128.00d	128.00a	131.00a				.....	.....	18.72	22.80
	.....	.....	*132.00*	*132.00e*	*132.00e*	*136.00e*	*185.00e*	*185.00e*	*188.00*	.....	.....	.....	.....
San Francisco 1	*85.00*	*85.00*	*88.00*	*88.00*	*88.00*	*88.00*	*99.00*	*118.00*	*118.00*	.....	.....	12.22	14.91
Seattle †	*67.00*	*73.00*	*75.00*	*75.00*	*75.00*	*75.00*	*85.00*	*90.00*	*90.00*	.....	.....	.....	.....
Toronto *	92.50a	93.50a	91.75a	86.00a	89.00a	89.00a	.....	.....	.....	90.00	.....	.....	.....
	108.00	*106.00*	*109.00*	*113.00*	*116.00*	*119.00*	*135.00*	*138.00*	*138.00*	.....	.....	.....	.....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. sad., truckload lots, 5/8 M†bm 4. Pine truckiots, f. o. b. city; fir truck lots. f. o. b. yard. 5. For f. o. b. city price, add approx. $8 for pine, $35.00 for fir.

LUMBER: Bold Face Type, Southern Pine. Italics, Douglas Fir. •a Spruce. •b Federal tax exempt, add 6% mun. & prev. tax. •c SM lots. •d 8, 10, & 12 ft. lengths. •e 8 to 16 ft. lengths. •f Hemlock •g No. 1 common. •j 8 ft. lengths. •k No. 3 common. •l Incl rail rate from North west mills to San Francisco are $11.50 to $15.00 per M ft. bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures. •m Up to 18' •R revised

PLYWOOD (Plyform, oiled and edge sealed): Douglas fir, 4' x 8' panels, 3-ply sanded 2 sides, carload lots, delivered per 1000 sq. ft. surface. Seattle base price, interior, moisture resistant, ⅜", $168.00; ¼", $186.00. Exterior, waterproof, ⅜" $170.00; ¼", $190.00. For other centers add rail freight increment from table on proper size. •a Lower rate by water shipment. •b 50,000 lbs. minimum. •c Truck lots.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS Discounts from jobbers list, Feb. 1, 1950a Single or Double Strength A quality	WINDOW GLASS Discounts from jobbers list, Feb. 1, 1950a Single or Double Strength B quality	EXPLOSIVES Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
Atlanta	78%cc	78%e	$0.2615
Baltimore	74%d	76%d	.2615
Birmingham	82%	83%	.2485
Boston	72–10%	72–10%	.2615
Chicago	72%	72%	.2615
Cincinnati	74%	74%	.2615
Cleveland	74–2–10%	74–2–10%	.3015
Dallas	76%	76%	.2890
Denver	74%	74%	.2665
Detroit	74–10–10%	74–10–10%	.2615
Kansas City	76–10–10%	76–10–10%	.2665
Los Angeles	70%	76%e	.2640
Minneapolis	71–10%	71–10%	.2665
Montreal	40–10–5%bc	40–10–5%	23.05h
New Orleans	75%	76%	.2665
New York	79–10%	79–10%	.45g
Philadelphia	74–10%	75–10%	.2615
Pittsburgh	72%	72%	.2615
St. Louis	72–10–10%	72–10–10%	.2665
San Francisco	60%	73%	.2615
Seattle	67%	72%	.2640

Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U. S., $1.75 per 100 lbs. higher in Canada.

Glass: •a Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. •b sales tax extra. •c 77% or single strength. •d Discount 6/15/52. •e 77% for double strength.

Explosives: * Cartridges of 1¼", 1½", 1¾", 2", 2¼", 2½", 3" diameters. Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. •g In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. •h F.o.b. Bellewell (near Montreal), per 100 lb. forcite, 40%. Forcite 60%, $23.80

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E of the Miss., except Fla and Me... W of Miss. to Rocky Mtn. States, Fla. and Maine	$0.2065	$0.2465	$0.2615
	.2115	.2515	.2665
Rocky Mtn. States	.2115	.2515	.2665
Pacific N. W. States	.2090	.2490	.2640
Pacific S. W. States	.2065	.2465	.2615

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	By Rail Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	....
12-in.—2-ft. from butt	6-in.	50 to 59-ft.	.54	....
13-in.—2-ft. from butt	6-in.	60 to 69-ft.	.58	....
12-in.—2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.—3-ft. from butt	8-in.	91 to 100-ft.	....	....
14-in.—2-ft. from butt	8-in.	50 to 69-ft.	.50/68	....
14-in.—2-ft. from butt	8-in.	70 to 79-ft.	.78/.88	.93
14-in.—2-ft. from butt	8-in.	80 to 85-ft.	.88/93	.94
14-in.—2-ft. from butt	8-in.	85 to 89-ft.	....	1.00
14-in.—2-ft. from butt	8-in.	90 to 100-ft.	....	1.02

* Pine piling over 80-ft. available only in limited quantities

RAILWAY TIES

Prices f.o.b. per tie box carload lots:

		6" x 8" x 8' Untr.	6" x 8" x 8' Tr.	7" x 8" x 8'6" Untr.	7" x 8" x 8'6" Tr.
Birmingham*	Hardwood, Grade 3	$1.70	$2.55	Gr. 5 $2.25	$3.33
	Grade 2	1.50	2.35	" 4 2.10	3.18
	Grade 1	1.15	2.00	" 3a 1.70	2.78
Chicago	Red Oak	.....	3.80a	.....	4.40a
New York	S. L. Sap Pine	2.00	4.00	3.00	6.00g
	Mixed Oak	2.50	4.50	3.50	6.50g
Philadelphia	Red Oak	2.85/4.05	4.40/4.60	3.20/3.40	4.40/4.60
St. Louis	Mixed Oak	2.65	3.40a	2.90h	3.75ah
San Francisco	Douglas Fir	2.12e/f	3.10e/f	2.99e/f	4.52ce

Tr.—Treated; Untr.—Untreated. a Creosoted. c Empty cell. e Green f.o.b. cars. g 7 x 9 x 8' 8' * Add 75¢/tie freight charge to Birmingham. •h 7" x 9" x 9½"

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$5.02
Chlorine cylinders, liquid, per lb. f.o.b. works	.11
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	31.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	2.65
Soda ash, 58%, in paper bags, per 100 lb. dense	1.90
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	2.05
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	21.20

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, Reports
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

Me., Kennebunk—BA 12/2—Kennebunk Sewer Dist., Bd. Trustees, 10 Storer St., Kennebunk, Contr. No. 2, sewage treatment plant, Water St. $200,000, Plans deposit $20, CD 9/29, under LB; Contr. No. 3—sewer force mains, siphons and pumping stations, $100,000, Plans deposit $15; Contr. No. 4—sewerage treatment plant, Boothbay Rd. $100,000, Plans deposit $20. Whitman & Howard, Inc., 89 Broad St., Boston, Mass., engr.

BUILDINGS—BA

▲ **Conn., Stamford**—HOUSING—BA 12/2—Stamford Housing Auth., 100 Myano Lane, Proj. MR-68, 2 story, garden apartments moderate rental housing development, 29 bldgs., 206 dwellings, $1,500,000. Plans deposit $30. Wm. F. R. Ballard, 123 E. 77 St., New York, N. Y., archt. Fraioli-Blum-Yesselman, 250 E. 43 St., New York, N. Y., engrs. CD 3/13.

▲ **Conn., Newtown**—SCHOOL—BA 12/8—Town, School Bldg. Com., Town Hall, high school addn., Queen St., $1,192,000. J. Gerald Phelan, 211 State St., Bridgeport, archt. Fletcher-Thompson, Inc., 211 State St., Bridgeport, engr. CD 9/18.

HEAVY CONSTRUCTION—LB & CA

MAINE—State Hy. Comn., Augusta,
Callahan Brothers, Inc., Mechanic Falls, Me., CA **$246,273** (11 bidders), Interstate over MCRR and County Road, Waterville, Proj. No. I-95-6 (24) 123 Part 1; CA **$209,500** (10 bidders), Interstate over Main St., Waterville, Proj. No. I-95-5 (24) 124, both in Kennebec Co. Bids Nov. 5. CD 10/27.

MAINE—State Hy. Comn., Augusta,
Me.—**Wyman & Simpson, Inc.**, Augusta, Me., CA **$406,986** (9 bidders), grading, drainage and base 0.42 mi. Waterville, FAP No. I-95-6 (20) 123, Kennebec Co. CD 10/27;
Me.—**W. H. Hinman, Inc.**, North Anson, Me., CA **$348,440** (5 bidders), b. conc. 2.552 mi. Rte. 98, Saco. FAP No. DF-09-1 (1), York Co. Bids Nov. 5. CD 10/29.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Bids opened 11/4,
M. A. Gamino Constr. Co., 728 Valley St., Providence, R. I., LB **$831,865**, est. $945,418, hy. and bridge constr. Interstate Rte. 95 E. FA 1-95E-3(4)2, Seekonk-Rehoboth. CD 10/22.
MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
David M. Deans & Son, Sabin Dr., Williamstown, Mass., CA **$608,609**, est. $748,146, (Item A) hy. and bridge constr. Rte. 8. FA No. DF 173(12), Cheshire and Lanesboro. Bids Sept. 16. CD 9/22, under LB.
MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Ralph Richard Constr. Co., 495 Whiting Ave., Dedham, Mass. CA **$607,374**, est. $653,587, wid'n. section Rte. 128, DU-272(30), Lynnfield-Wakefield. Bids Oct. 15. CD 10/22, under LB.
MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Suburban Excavators, Inc., 4 New Salem St., Wakefield, Mass., CA **$502,818**, est. $666,895, hy. constr. Rte. 125, DF-372(2), Wilmington-North Reading and Andover. Bids Sept. 23. CD 9/29, under LB.
MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
J. F. White Contg. Co., P. O. Box 358, Westwood, Mass., CA **$633,000**, est. $701,640, bridge superstructure DU 365(1), Boston-Milton. Bids Oct. 15. CD 10/22, under LB.
MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston. Bids opened 11/4,
Mass.—**S. & M. Constr. Co., Inc.**, 30 Salmon St., Providence, R. I., LB **$359,676**, est. $473,689, constr. section Rte. W 95, Proj. 1-W95-6 (7), Chelmsford;
Mass.—**Ricciardi & Sons Constr., Inc.**, 219 Ludlow St., Worcester, Mass., LB **$285,542**, est. $316,140, hy. work-Pleasant St. DF 146 (3), Worcester;
Mass.—**Norwell Sand & Gravel Co.**, 365 Centre Ave., Rockland, Mass., LB **$160,016**, est. $183,046, hy. work Whiting and Derby Sts., DF 15 (2) & DS 124 (2), Hingham. CD 10/27.

Atlas Marine Constr. Co., Inc., 89 Broad St., Boston, Mass., LB **$224,335**, est. $340,540, constr. concrete sea wall and stone revetment, Long Beach, Rockport, MASSACHUSETTS. Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mass. Bids Nov. 4. CD 10/24;
Joseph Perry, Inc., 906 Hathaway Rd., New Bedford, Mass., LB **$113,845**, est. $91,200, constr. stone groinfurnish, place sand fill-Rodney French Blvd. East, New Bedford (Massachusetts).
▲† **Perini Corp.**, 73 Montwait Ave., Framingham, Mass., LB **$3,028,947**, airfield pavement (FY59) Otis Air Force Base, ENG-19-016-59-34, FALMOUTH, MASS. U. S. Eng., 150 Causeway St., Boston, Mass. Bids Nov. 6. CD 10/14.
RHODE ISLAND—State R. I. & Prov. Plants, Div. Purchase, State House, Providence. Bids opened 11/5,
Campanella & Cardi Constr. Co., 780 Jefferson Blvd., Warwick, R. I. LB **$113,689**, est. $100,000, hy. work, Broad St. Bid 398, R. I. Contr. 5838, F. A. Proj. DF-012 (1) Cranston. CD 10/27.
CONNECTICUT—State Hy. Dpt., 165 Capitol Ave., Hartford,
Conn.—**E. B. McGurk, Inc.**, 355 Barbour St., Hartford, Conn., LB **$152,404** (7 bidders) resurf. hot b. conc. 14,658 lin. ft. on Route U. S. 5 Fed. Aid Proj. DF-154-(2) Proj. 136-67, South Windsor; LB **$77,957** (5 bidders) resurf. hot b. conc. 11,855 lin. ft. 2 sections Northbound Roadway of Rt. 5, Fed. Aid Proj. DF-32-(18) Proj. 79-68 Berlin, Meriden and Wethersfield.
Conn.—**D. V. Frione & Co., Inc.**, 87 Foxon St., New Haven, Conn., LB **$388,924** (6 bidders) resurf. hot b. conc. 9,453 lin. ft. Routes 63 and 57 incl. Truck Climbing Lane, Fed. Aid Proj. DF-55-(5) Proj. No. 167-59, Woodbridge. CD 10/27.

BUILDINGS—LB & CA

▲ **William & Roland Hauke**, Woodbury Rd., Burlington, Vt. CA Approx. **$1,000,000**. SHOPPING CENTER, 20 stores, etc., Barre Rd., MONTPELIER, VT. Antonio Pomerleau, c/o Pomerleau Real Estate Co., 185 College St., Burlington, Vt.
▲ **Gilbane Bldg. Co.**, 90 Calverley St., Providence, R. I., LB **$1,348,950**, Proj. Mass. 19-CH 21 (D) DORMITORY and LIBRARY BLDG., Huntington Ave., BOSTON, MASS. New England Conservatory of Music, 290 Huntington Ave., Boston, Mass. Bids Nov. 7. CD 10/30.
▲ **M. S. Kelliher Co.**, 294 Washington St., Boston, Mass., LB **$3,150,000**, SOUTH HIGH SCHOOL, Oak Hill, NEWTON, MASS. City, City Hall, Newton Center, Mass. Bids Oct. 30. CD 10/9.
▲ **Laurel Hill Acres, Inc.**, Windward Way, Waterford, Conn., Owner Builds. **$3,250,000**, 130 HOUSES, Flanders Rd., EAST LYME, CONN.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

N. Y., New York—FLUORESCENT LIGHTING—BA 11/28—New York City Transit Auth., Rm. 1310, 370 Jay St., Brooklyn, Zone 1, furnishing, installing fluorescent lighting for station platforms, Chambers, Fulton and Broad Street Stations, Nassau Street Loop, BMT Division, Contr. E-183, Manhattan Boro. CD 8/31/45.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

▲ **N. Y., Brooklyn**—WHARF TERMINAL—BA 12/5—Comr. Marine and Aviation, Rm. 13, Pier 1, North River, New York, Zone 4, Contr. No. 3077, reconstr wharf terminal at foot of 29th St., Gowanus Bay, Contr. No. 3077-A, general constr. wharf terminal, Contr. No. 3077-B, plumbing and standpipe facilities, Contr. No. 3077-C, sprinkler facilities, Contr. No. 3077-D, electrical facilities, Brooklyn Boro. Plans deposit $10 each. CD 6/11.
N. Y., New York—TELEPHONE CABLES—BA 12/5—New York City Transit Auth., Rm. 1310, 370 Jay St., Brooklyn, Zone 1, constr., equip. new frame room, incl. termination therein of all existing telephone cables at 96th St. Station, Lexington Ave. Line, IRT Division, Contr. S-103, Manhattan Boro. CD 3/3/44.
Pennsylvania—BA 12/16—Pa. Dpt. Forests & Waters, 512 Educ. Bldg., Harrisburg, Ryerston Station Dam on North Fork of Dunkard Fork of Wheeling Creek, Richhill Twp., Greene Co. $750,000. Plans deposit $15. D. B. Murphy, c/o owner, ch. engr. CD 10/30.
▲† **Md., Andrews Air Force Base**—AIRPORT IMPRVS.—BA On Or About 12/20—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., runway, taxiway and aprons, Serial No. ENG-49-080-59-24-(25). Plans deposit $50. CD 10/31.
N. Y., Rock Hill—Bids Asked—Lake Louise Marie Corp., Lake Louise, Rock Hill, water and sewerage disposal plant to serve 1,400 homes.

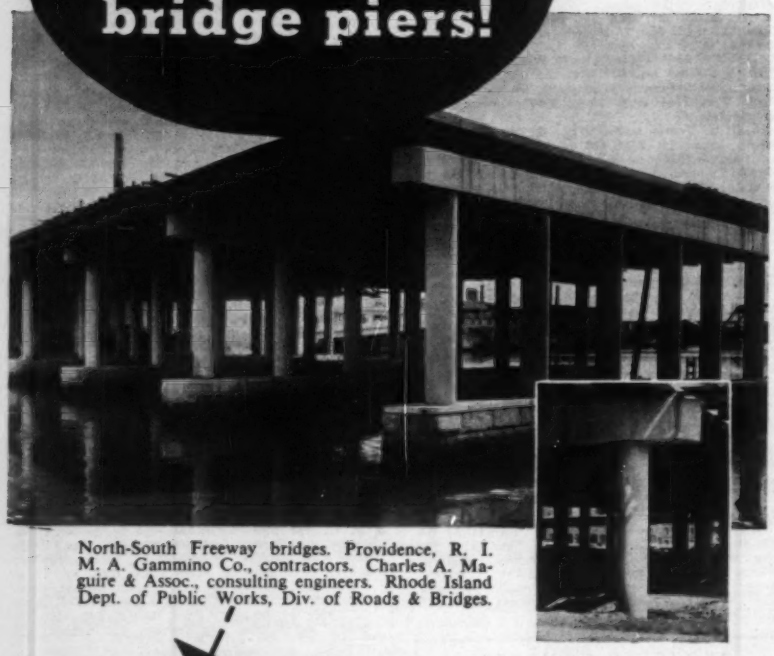
BUILDINGS—BA

▲ **Pa., Fallsington**—SCHOOL—BA 11/25—Pennsbury Jt. School Bd., Fallsington, Junior High School. $1,500,000. Plans deposit $50. Bellante & Clauss, 114 W. State St., Trenton, N. J., archts.-engrs. CD 12/27/57.
Pa., Spring City—SCHOOL—BA 11/25—Spring City Pa. School Auth., elementary school. $400,000. Plans deposit $50 general constr., $20 others. Everett Assoc., 512 Hamilton St., Allentown, archts. S. W. Herring, 512 Hamilton St., Allentown, engr. CD 10/13.
▲ **N. Y., New York**—HOSPITAL—BA 11/26—Henry A. Cohen, dir. Bureau Contracts, Dpt. P. Wks., State Office Bldg., Albany, general constr., heating, sanitary and electrical work for Power House Bldg. No. 11 at Bronx State Hospital for Dpt. Mental Hygiene, Spec. Nos. 14942-C, 14942-H, 14942-S and 14942-E, Bronx Co. Over $4,000,000. Plans deposit $40 each for general and heating, $10 sanitary, $30 electric. CD 4/30.
▲ **Pa., Bristol**—SCHOOL—BA 12/2—Bristol Pa. Bd. Educ., Junior-Senior High School addn. $1,400,000. Sabatino & Fishman, 116 S. 19th St., Phila., archts. Keast & Hood, 1201 Chestnut St., Phila., engrs. CD 9/18.
▲ **N. Y., Auburn**—SCHOOL, etc.—BA 12/10—Henry A. Cohen, dir. Bureau Contracts, Dpt. P. Wks., State Office Bldg., Albany, general constr., heating, sanitary and electrical work for school and maintenance shop Bldg. No. 18, incl. imprv. grounds and service connections, Auburn Prison, Spec. Nos. 14082-C, 14082-H, 14082-S, 14082-E. Over $1,000,000. Plans deposit $40 general, $20 each, trades and $15 sanitary work. CD 6/29/45.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—Dpt. P. Wks., State Office Bldg., Albany,
N. Y.—**Depew Paving Co., Inc.**, 161 Woodlawn Ave., Depew, N. Y., CA **$546,802**, wid'n., resurf. 4.93 mi. section Jamison Rd. (Rte. 422) starting near Seneca St. in Center Rd. Town of Marilla, Erie Co.;
N. Y.—**Fago Bros. Contg. Co., Inc.**, 521 Young St., Tonawanda, N. Y., CA **$1,878,122**, constr. 1.1 mi. sanitary sewerage sys. on Kensington Expressway, city of Buffalo, Erie Co.;
N. Y.—**Zara Contg. Co., Inc.**, Engel St., Hicksville, N. Y., CA **$2,729,471**, wid'n. new concrete pavement and asphalt and b. conc. pavement on new concrete base, resurf. asphalt on concrete, concrete curbs, median strips with walks, on six-lane section Conduit Blvd. (Sunrise Hy.), 4.04 mi., Nassau Co.;
N. Y.—**D. & T. Franzese Bros., Inc.**, 100 N. Franklin St., Watkins Glen, N .Y., CA **$523,641**, wid'n., resurf. 4.99 mi. section Rte. 96A starting east Rte. 114 in village Lodi and extending to point just west Rte. 96 in Village Interlake, Seneca Co.;
N. Y.—**John Arborio, Inc.**, W. Cedar St., Poughkeepsie, N. Y., CA **$1,072,500**, wid'n., resurf. 6.66 mi. section Rte. 97 starting southwest Pond Eddy and extending northwest to Barryville, Sullivan Co. Grand total, $6,750,536. Bids Sept. 18. CD 9/19, under LB.
▲ **NEW YORK**—Dpt. P. Wks., State Office Bldg., Albany,
Peerless Constr. Co., Scarsdale, N. Y., CA **$639,909** b. conc. 0.2 mi. railroad separation to carry Michigan Ave. over Niagara Thruway and New York Central R.R. tracks in Buffalo, Erie Co. Bids Aug. 28. CD 9/4, under LB.
David Coyne & Co., Inc., 250 East 43rd St., New York 17, N. Y., LB **$183,000** (9 bidders) furnishing, installing fluorescent lighting for Station Platforms, Canal, Bowery and Essex St. Stations, Broadway and Centre St. Loop Lines, BMT Div., Contr. No. E-182, Manhattan Boro, NEW YORK, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, N. Y. Bids Oct. 31. CD 10/14.
† **Great Lakes Dredge & Dock Co.**, 34 Niagara St., Buffalo, N. Y., CA **$793,520**, dredging new north en-

Money-saving forms for bridge piers!



North-South Freeway bridges. Providence, R. I. M. A. Gammino Co., contractors. Charles A. Maguire & Assoc., consulting engineers. Rhode Island Dept. of Public Works, Div. of Roads & Bridges.

Round concrete piers formed with

SONOCO
Sonotube.®
FIBRE FORMS

Many of the bridges, overpasses and grade separations currently under construction across the country contain round concrete piers formed by SONOCO Fibre Forms.

Typical of such use of the fibre forms are the North-South Freeway bridges which by-pass Providence, R. I. The river bent includes a concrete girder about 140 feet long supported on eight round concrete piers erected with 36" I.D. Sonoco Sonotube Fibre Forms.

Sonoco Fibre Forms save time because they erect quickly . . . save labor, because they require minimum bracing and are easy to handle . . . save money because they are economical to use!

Available from 2" to 48" I.D. up to 48' long. Order in specified lengths or saw to size on the job. Sonoco's patented "A" coated fibre forms are for finished columns; wax-coated also available.

See our catalog in Sweet's

- HARTSVILLE, S. C.
- LA PUENTE, CALIF.
- MONTCLAIR, N. J.
- AKRON, INDIANA
- LONGVIEW, TEXAS
- ATLANTA, GA.
- BRANTFORD, ONT.
- MEXICO, D.F.

For complete information and prices, write

SONOCO
Construction Products
SONOCO PRODUCTS COMPANY

3234

trance of channel to Buffalo Harbor, Buffalo, NEW YORK. U. S. Eng., Engineer Park, Buffalo, Zone 7, N. Y. Bids Oct. 23. CD 11/7, under LB.

NEW JERSEY—Comr. State Hy. Dpt., 1035 Parkway Ave., Trenton, Bids opened 11/6,

Whippany Constr. Co., DeForrest Ave., Hanover, N. J., LB $394,819, (16 bidders), reconstr. 1.596 mi. Canoe Brook Rd. from point 875 ft. north of Morris and Millburn Twp., Essex Turnpike to Parsonage Hill Rd., Fed. Aid Sec. Proj. No. S-238(1), Essex Co. CD 10/22.

▲ **NEW JERSEY**—State Hy. Dpt., Kenneth D. Rice, secy., 1035 Parkway Ave., Trenton,

Kingston Bituminous Products Co., Kingston, N. J., CA $717,717, wid'n., resurf. 3.466 mi. U.S. Rte. 1, Sect. 2, from State Motor Vehicle Inspection Station to point ¾ mi. south of Alexander Rd., Mercer Co.; CA $606,607, wid'n., resurf. 3.087 mi. U.S. Rte. 1, Sects. 3C and 4E, from State Police barracks to Stout's Lane in Plainsboro and South Brunswick Twps., Middlesex Co., Bids Oct. 21, awarded Nov. 6. CD 10/24, under LB.

Ole Hansen & Sons, Pleasantville, N. J., CA $250,000, Bldg. 149 alterations, National Aviation Facilities Experimental Center; CA $240,000, Bldg. 19 alterations, ATLANTIC CITY, N. J. Airways Modernization Bd., 916 G St. N.W., Wash., D. C.

▲ **PENNSYLVANIA**—Pa. Hys. Dpt., 506 North Office Bldg., Harrisburg,

Pa.—**Reed & Kuhn, Inc.**, Elysburg, Pa. CA $905,950 9,761 ft. divided hy. wid'n. existing road with crushed aggreg. base and bit. surf. 24 ft. wide each side 4 ft. divisor; 2 bridges. T. R. U.S. 12, W. Brunswick Twp. Schuylkill Co.;

Pa.—**H. B. Putman Co.**, Honesdale, Pa., CA $581,517, 30,008 ft. crushed aggreg. base with bit surf. 22 ft. wide, T.R. 106, Berlin and Damascus Twps. Wayne Co. Bids Oct. 17, awarded Nov. 5. CD 10/22, under LB.

Helmark Constr. Co., 892 N. Markol St., Phila., Pa. LB $129,997, Bid 2131, water mains; LB $48,810, Bid 2129, water mains, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Oct. 28. CD 10/14.

Joseph Paolino & Co., 7430 Buist Ave., Phila., Pa., LB $152,232. Bids 3403-3405 paving, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Oct. 30. CD 10/16;

James D. Morrissey, Inc., 9119 Frankford Ave., Phila., Pa. LB $91,927, Bids 3399-3404-3406 paving (Phila., Pa.).

S. T. G. Constr. Co., 82 Beaver St., New York, N. Y. LB $197,507 (8 bidders) widening New Hampshire Ave. Bridge (556) Fed. Aid Proj. DFG-19'6 WASH., D. C. D. C. Govt., Dpt. Hts., 499 Pa. Ave. N.W., Wash., D. C. Bids Nov. 5. CD 10/23.

BUILDINGS—LB & CA

Johnson, Drake & Piper, 2760 Walden Ave., Cheektowaga, N. Y., CA Est. $900,000, 80,000 sq. ft. S. Michigan Ave. PLANT addn., 10,000 sq. ft. CEREAL PLANT addn. and 300 ft. piling along Buffalo River, BUFFALO, N. Y. General Mills, Inc., 9200 Wayzata Blvd., Minneapolis 26, Minn.

▲ **Siegfried Constr. Co.**, 6 N. Pearl, Buffalo, N. Y., CA $2,052,407 (12 bidders) general constr. HIGH SCHOOL, CHEEKTOWAGA, N. Y. Pine Hill Bd. Educ., 1635 E. Delavan, Cheektowaga, N. Y. Pfohl, Stoll & Roberts, 185 Niagara, Buffalo, N. Y., archts. CD 6/11.

▲† **R. S. Noonan, Inc.**, 26 No. Duke St., York, Pa., CA $1,793,397, POST OFFICE and COURT HOUSE, JAMESTOWN, N. Y. General Services Admin., 250 Hudson St., New York 13, N. Y. Bids Oct. 14. CD 10/6, under LB.

▲ **Caristo Constr. Corp.**, 26 Court St., Brooklyn 2, N. Y., LB $2,180,000 (9 bidders), general constr. JUNIOR HIGH SCHOOL 136, Prospect Ave., Ritter Pl., Union Ave. and Jennings St., Bronx Boro, NEW YORK, N. Y. Bureau Constr., Supt. School Bldgs., 4th Fl, 42-15 Crescent St., Long Island City 1, N. Y. Bids Nov. 7. CD 10/21.

A. Wakefield, Inc., Lakewood, N. J., Separate Contracts, $510,000, RESIDENTIAL DEVELOPMENT, Laurelwood Ave., etc., LAKEWOOD, N. J. Silberstein & Silberstein, 24 William St., Newark, N. J., archts.

Calco Constr. Co., Point Pleasant, N. J., Separate Contracts, $ 350,000, RESIDENTIAL DEVELOPMENT, Kingston Ave., etc., POINT PLEASANT, N. J.

David R. Spader, Point Pleasant, N. J., Separate Contracts, $350,000, RESIDENTIAL DEVELOPMENT, Mallam St., POINT PLEASANT, N. J.

Great Eastern Development Co., 373 E. State St., Trenton, N. J., Separate Contracts, $350,000, MEDICAL ARTS BLDG., TRENTON, N. J. Davis & Farinella, 383 Washington Ave., Belleville, N. J., archts.-engrs.

L. F. Driscoll, 32 W. Coulter St., Phila., Pa., LB $357,000. general constr. HOSPITAL addn., alterations BRISTOL, PA. Lower Bucks Co. Hospital, Bristol, Pa. Horace B. Nicholson & Milton W. Rothbaum, 215 S. Broad St., Phila., Pa., engrs. CD 7/9.

Joseph & Morris Bobb, Newtown Square, Pa. Separate Contracts. $350,000, RESIDENTIAL DEVELOPMENT (20) Valley Forge Rd., etc., KING OF PRUSSIA, PA.

▲ **Fox Constr. Co.**, c/o Robert Fox, 2098 Butler Pike, Plymouth Metting, Pa. Separate Contracts. $1,250,000. 70 RESIDENTIAL DEVELOPMENT, off Rte. 202, PAOLI, PA.

▲ **Cutler Homes, Inc.**, 1615 Chelten Ave., Phila., Pa. Separate Contracts. $1,000,000. 45 RESIDENTIAL DEVELOPMENT, Welsh Rd., PHILA., PA. S. Sherwin Rochlis, 1325 Walnut St., Phila., Pa., archt.

Robert Russell Homes, Inc., 2124 Pine St., Phila., Pa. Separate Contracts. $350,000. RESIDENTIAL DEVELOPMENT, Boyer St., etc., PHILA., PA. Budd Ross, 5409 Market St., Phila., Pa., archts.

Streeper Karr, Roslyn, Pa. Separate Contracts. $350,000. RESIDENTIAL DEVELOPMENT, ROSLYN, PA.

▲ **Virginia Engineering Co., Inc.**, 80 29th St., Newport News, Va. CA **$7,246,000**, general constr. Pollock Circle Proj., consisting of 7 RESIDENCE HALLS to house 2,000 students on east campus incl. women's residence hall, men's residence hall and dining hall, UNIVERSITY PARK, PA. Pa. State University, University Park, Pa. Harbeson, Hough, Livingston & Larson, 117 S. 17th St., Phila., Pa., archts. A. W. Lookup Co., 1505 Race St., Phila., Pa. and Sauter & Castor, 141 Walnut St., Phila., Pa., engrs. CD 9/28/48.

George H. Snyder, Newtown Square, Pa. Separate Contracts. **$350,000.** RESIDENTIAL DEVELOPMENT, Scott Lane, etc., WALLINGFORD, PA.

John Tester & Son, Clinton, Md., LB **$816,849** (9 bidders), Palmer Park JUNIOR HIGH SCHOOL addn., Lanham, MARLBORO, MD. Prince George's Co. Bd. Educ., Marlboro, Md. Bids Nov. 3. CD 10/29.

Magness Constr. Co., 1530 Faulk Rd., Wilmington, Del., Separate Contracts, **$500,000** SUPERMARKET, and 18 STORES, Marsh Rd. and Silverside Rd., WILMINGTON, DEL.

SOUTH

HEAVY CONSTRUCTION—BA

Ky., Beachwood Village—BA 11/28—Bd. Village Trustees, sanitary sewerage sys. involving 32,400 ft. 8- to 10-in. sewer pipe, 7,300 ft. 8 in. force main and sewage pumping station. Over $100,000. Plans deposit $50. J. Stephen Walkins & Robert E. Martin, 5402 Preston Hy., Louisville, Zone 13, engrs. CD 6/11.

Ga., Canton—BA 12/1—Cherokee Co. Water Auth., Courthouse, 114, 141 lin. ft. water lines, etc. Over $300,000. Plans deposit $25. Merritt & Welker, 410 Roswell St., Marietta, engrs.

Tenn., Lebanon—BA 12/2—City, City Hall, water filtration plant addn. $130,000. Plans deposit $40. Wiedeman & Singleton, P. O. Box 1878, Atlanta, Ga., engrs.

† **Fla., Eglin Air Force Base**—CREW BLDG.—BA About 12/3—U. S. Eng., 2301 Grant St., Mobile, Ala., 13,360 sq. ft. readiness crew bldg., ENG-01-076-59-40. CD 9/6.

S. C., Cowpens—BA 12/10—Cowpens Water Dist., water sys. $425,000. Harwood Beebe Co., 171 Pine St., Spartanburg, engr.

† **Fla., Key West**—REROOFING—BA 12/16—P. Wks. Officer, Naval Base, S. C., reroofing 19 buildings at U. S. Naval Air Station, Boca Chica Field and Seaplane Base, NBy-19942. CD 10/15, under LB.

† **Ga., Brunswick**—SERVICE STATION—BA 12/16—P. Wks. Office Dpt. Navy, Naval Base, S. C. Navy Exchange Service Station mat, U. S. Naval Air Station (Spec. G1-101) Glynco. CD 8/5.

BUILDINGS—BA

▲ **Fla., Tampa**—STUDENT UNION, etc.—BA 12/3—State Bd. Control, University of South Florida, classroom, student union and cafeteria bldg. $1,000,000. CD 5/29.

† **Tenn., Oak Ridge**—SPRINKLER SYSTEMS—BA About 12/4—U. S. Atomic Energy Comn., P. O. Box E, ATTN: R. J. Dunbar, Area Constr. Div., constr. sprinkler sys. in Gaseous Diffusion Plant Bldg. K-402 and Switchhouse K-731, Inv. No. 401-59-5A. Plans deposit $25.

† **Ala., Huntsville** — PROPELLANT FACILITIES — BA 12/12—U. S. Eng., P. O. Box 1168, Mobile, constr. propellant development facilities (Thiokol) Second Increment Redstone Arsenal, ENG-01-076-59-44B. CD 9/11.

† **Fla., Lake City**—BUILDING—BA 12/23—Veterans Admin. Munitions Bldg., Wash., D. C., alterations, addn. to Buildings Nos. 19 and 64 at Veterans Admin. Hospital, Reynolds, Smith & Hills, 227 Park St., Jacksonville, archts. CD 3/13/56.

HEAVY CONSTRUCTION—LB & CA

▲ **WEST VIRGINIA**—State Road Comn., Charleston, Zone 5, Bids opened 11/6,

W. Va.—**Harrison Constr. Co.**, 1101 Western Ave., Pittsburgh, Pa., LB **$3,837,155**, conc. pavement and structures, 2.104 mi. Interstate 70 between Mount DeChantal and Elm Grove, Proj. I-70-1(8)2, Ohio Co.;

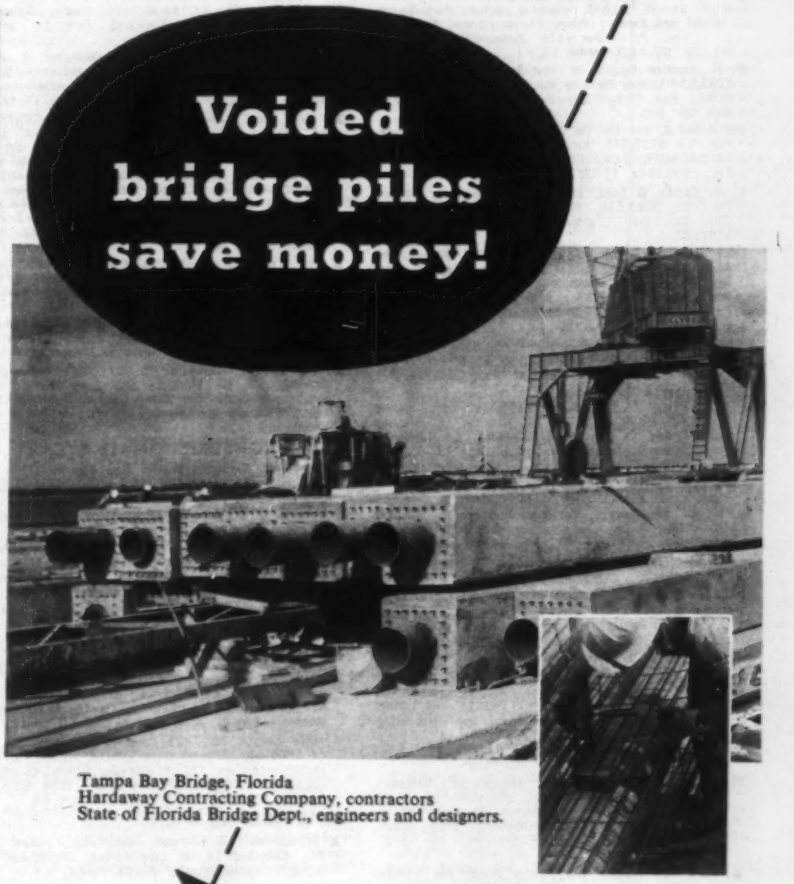
W. Va.—**Nello L. Teer Co.**, Durham, N. C., LB **$1,781,939**, grading, draining and structures 3.412 mi. Interstate 64 from 0.5 mi. West of Sec. 40 to W. Va. 34, Contr. No. 1, Proj. I-64-1(21)35, Putnam Co.;

W. Va.—**Andersons', Inc.**, P. O. Box 3004, Charleston, W. Va., LB **$219,291**, c. conc. 0.466 mi. Walnut St. in Ravenswood, W. Va. Rte. 56, Proj. D. S. 670(1), Jackson Co., CD 10/29.

▲ **Atlantic States Constr. Co.**, 7 Baltimore Place N. W., Atlanta, Ga. LB **$1,397,000**, dock, warehouse and terminal facilities for Ocean Terminal, GEORGETOWN, S. C. S. C. State Ports Auth., 1 Vendue Range, Charleston, S. C. Bids Nov. 5. CD 10/21.

▲ **FLORIDA**—State Rd. Dpt., Tallahasse,

Marion Constr. Co., Box 577, Ocala, Fla., CA **$1,616,386**, 8½ in. limerock base with b. conc. course and binder course, 2 concrete deck bridges on prestressed beam on prestressed concrete pile bents with timber fenders and navigation lights, 2 concrete box culverts of bridge length and cattle underpass, small drainage structures, etc. 12,992 mi. between SR 314 at Salt Springs and SR 310 at Rodman, Fed. Aid Proj. Nos. FJ-15B and S 259 (2), Jobs Nos. 36090-3202, 76020-3201, 76020-3501 and 76020-3502 SR 19, Marion and Putnam Counties, Bids Sept. 23, CD 9/30, under LB.



Tampa Bay Bridge, Florida
Hardaway Contracting Company, contractors
State of Florida Bridge Dept., engineers and designers.

Precast, prestressed concrete piles contain

SONOCO

SONOVOID

FIBRE TUBES

The Tampa Bay Bridge connects Tampa and St. Petersburg, Florida and is a 3-mile long structure accommodating four lanes of traffic.

Piles for the project are 24" square, precast, prestressed concrete containing 12" O.D. Sonoco SONOVOID Fibre Tubes and twenty-four 7/16" seven-strand pretensioning cables.

There are 285,000 linear feet of piles varying in length from 60 to 110 feet. The average pile length is 75 ft. and despite these rather long piles, it is reported that the cost of the structure is very low.

Sonoco SONOVOID Fibre Tubes were specifically developed for use in bridge decks, floor, roof and lift slabs and in concrete piles. For prestressed precast units or units cast in place.

Order in sizes from 2.25" to 36.9" O.D. up to 48' long.
Specify lengths to meet your needs or saw to size on the job. End closures available.

See our catalog in Sweet's

For complete information and prices, write

- HARTSVILLE, S. C.
- LA PUENTE, CALIF.
- MONTCLAIR, N. J.
- AKRON, INDIANA
- LONGVIEW, TEXAS
- ATLANTA, GA.
- BRANTFORD, ONT.
- MEXICO, D.F.

SONOCO
Construction Products
SONOCO PRODUCTS COMPANY

3233

▲† **Standard Dredging Corp.**, 200 E. 42 St. New York, N. Y. CA **$2,714,645**, widening, deepen Port Tampa Channel and Turning Basin, Tampa Harbor, FLORIDA. U. S. Eng., P. O. Box 4970, Jacksonville, Fla., Bids Oct. 30. CD 11/5, under LB.

W. H. Armston Co., P. O. Box 36, Dunedin, Fla., LB **$283,634** paving 58 and 9th Ave. N., ST. PETERSBURG, FLA. City, City Hall, St. Petersburg, Fla. Bids Oct. 31.

Van Orden & Van Ess Co., 5611 E. Broadway, Tampa, Fla., LB **$267,545**, Sanitary Sewer Proj. 26-A, ST. PETERSBURG, FLA. City, City Hall, St. Petersburg, Fla., Bids Nov. 5, CD 10/29.

J. W. Connor & Sons, Inc., 3916 E. 8 Ave., Tampa, Fla., LB **$263,116**, street imprvs., TAMPA, FLA. City, City Hall, Tampa, Fla. Bids Oct. 23, CD 5/9/52.

Brice Bldg. Co., Inc., 1021 2 Ave. N. Birmingham, Ala., CA **$213,163** water distr. sys. bldg., 2 Ave. and 35 St. S., BIRMINGHAM, ALA. Birmingham Water Works Bd., 2114 1 Ave. N., Birmingham, Ala., Awarded Nov. 3. CD 8/21/52.

† **R. G. Foster & Co.**, Wadley, Ga., LB **$256,587**, perimeter road, Columbus Air Force Base, IFB ENG-01-076-59-26B, COLUMBUS, MISS. U. S. Eng., P. O. Box 1169, Mobile, Ala. Bids Oct. 23. CD 9/26.

T. L. James & Co., Inc., Box 8, Kenner, La. or Box 531, Ruston, La., LB **$139,675**, b. conc. paving River Rd. between Oak St. in Harahan to Jefferson Heights Ave. in 7th Ward, GRETNA, LA. Jefferson Parish Council, Gretna, La. Bids Oct. 23.

Carroll Drainage & Constr. Co., Box 667, Denham Springs, La., LB **$163,050**, enlargement Twelve Mile Bayou and Black Bayou Levee, involving 146,100 cu. yd. embankment, Cottonwood Bayou to Whiskey Rd., 217,400 cu. yd. embankment Whiskey Rd. to Gamm Rd., SHREVEPORT, LA. Caddo Parish Levee Dist., 1340 Grimmett St., Shreveport, La. Bids Oct. 16. CD 10/6.

BUILDINGS—LB & CA

† **Goode Constr. Corp.**, 200 Builders Bldg., Charlotte, N. C., CA **$507,454**. POST OFFICE and COURT HOUSE, ABINGDON, VA. General Services Admin., 19th and F Sts. N. W., Wash., D. C. Bids Oct. 7. CD 10/10, under LB.

† **A. E. Minstein**, 864 Willis Ave., Albertson, N. Y., LB **$708,000**, Bid 1; U. S. POST OFFICE and COURT HOUSE (except elevator) extension and remodeling, LB **$713,000**, Bid 2, BLUEFIELD, W. VA., General Services Admin., Region 3, 7 and D Sts. S.W., Wash., D. C. Bids Oct. 31. CD 10/29.

M. B. Kahn Constr. Co, 1113 Blossom St., Columbia, S. C. CA **$644,350**. addns., alterations to Bldgs. 1, 2, 4 and 5 at Veterans Admin. Hospital, COLUMBIA, S. C. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Oct. 21, awarded Oct. 30. CD 10/27, under LB.

▲ **Robert L. Turchin Inc.**, 1835 Purdy Ave., Miami Beach, Fla., LB Approx. **$4,000,000** two 550 unit APARTMENTS, "South Gate Towers" West Ave. and 8 St. MIAMI BEACH, FLA. Nathan S. Gumenick, 420 Lincoln Rd., Miami Beach, Fla. Bids Oct. 16, CD 10/15.

▲ **McRoie, Inc.**, P. O. Box 1455 Orlando, Fla., Separate Contracts, **$3,000,000**, 350 RESIDENCES, Tafton Park Subdivision, ORLANDO, FLA.

Bear Bros., 39 E. Jefferson, Montgomery, Ala., CA **$663,594** (11 bidders) HOSPITAL, SELMA, ALA. Vaughn Memorial Hospital, Inc., Selma, Ala. Bids Oct. 16, CD 9/29.

▲ **American Bridge Division of U. S. Steel Corp.**, 700 N. 39 St., Birmingham, Ala., CA, supplying and erecting steel at SEGC's Wilsonville Dam, 3000 tons steel, WILSONVILLE, ALA., Southern Electric Generating Co., (Alabama Power Co. Ala. Power Bldg. Birmingham and Georgia Power Co., 75 Marietta St., Atlanta, Ga.) . CD 3/26/57.

Mary Chiles Hospital Bd. Trustees, Mount Sterling, Ky., rejected bids Sept. 15, hospital addn., MOUNT STERLING, KY. LB **$768,750**. CD 9/26, under LB.

Schatten-Cypress Co., c/o Donald F. Steinbaugh archt., 3 National Bank Bldg., Nashville, Tenn. Owner Builds. $400,000. APARTMENT, NASHVILLE, TENN. CD 11/3.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

Ill., Chicago—BA 11/18—Bd. Comrs. Cook Co., County Bldg., b. conc. paving, Wolf Rd. from Butterfield Rd. at Washington St. to St. Charles Rd., Section 016-2223.1 mft, $109,011. CD 10/6, under LB.

Ill., Chicago—BA 11/18—Bd. Comrs. Cook Co., County Bldg., Congress St. Expressway, incl. transit railway track elevation, grading, drainage, from east of 1st Ave. to west of DesPlaines, Section 062-3334.3a-14d, $217,086. CD 10/6, under LB.

▲ **O., Cleveland**—BA 12/8—Comrs. Cuyahoga Co., County Admin. Bldg., 1219 Ontario St., Zone 13, Lakewood Heights Blvd. Overpass, $1,536,000. Plans deposit $100. Albert S. Porter, Standard Bldg., Zone 13, city engr. Howard Needles Tammen & Bergendoff, 1805 Grand St., Kansas City, Mo., consult. engrs. CD 8/15/57.

† **Michigan**—BA 12/9—U. S. Eng., 1217 U. S. Post Office & Custom House, St. Paul 1, Minn., harbor imprvs., Lac La Belle Harbor, Lake Superior, Keweenaw Co., CIVENG-21-018-59-19. Extended date. CD 10/24.

BUILDINGS—BA

▲ **O., Delaware** — SEMINARY — BA 12/3 — Methodist Church, Falls Bldg., Nashville, Tenn., (selected list of bidders) Methodist seminary, 3 mi. south of Delaware on Rt. 23, $4,000,000. Dalton, Dalton & Assocs., The Arcade, Cleveland, Zone 14, archts. CD 9/23.

O., Lancaster—SCHOOL—BA 12/5—Ohio Dpt. P. Wks., State Dpts. Bldg., Columbus, Boys' Industrial School imprvs. Plans deposit $15. A. H. Moellenkamp, & Assocs., 121 N. High St., engrs. CD 12/17/52.

▲† **Ill., Great Lakes**—NAVAL TRAINING CENTER—BA 12/11—Dist. P. Wks. Office, Bldg. 1-A, permanent facilities for recruit training, recruit barracks and ships company barracks, incl. two, 3 story concrete fdns. barracks, one about 132 x 403 ft. with 2 inner courts, each 68 x 133 ft. and one about 112 x 134 ft. with inner court about 48 x 79 ft., Increment 1C of First Increment, Naval Training Center, Spec. No. 14727/58, $1,000,000. Plans deposit $60. CD 9/8.

▲ **Ind., Lafayette**—VETERINARY, SCIENCE AND MEDICINE—BA 12/12—Trustees Purdue University, West Lafayette, (1) second contr., School of Veterinary, Science and Medicine Bldgs. (2) extension of steam piping, (3) extension of power line. Plans deposit $100 for (1), and $25 for (2) and (3). Walter Scholer & Assoc., 1114 State St., engrs. CD 10/2.

▲ **Ill., Chicago**—APARTMENT—BA 12/15—Jerome X. Schultz, 22 W. Madison St., Zone 2, 21 story apartment, Gothe and Astor Sts. $1,800,000. Bertrand Goldberg & Assocs., 721 N. Michigan Ave., archts.

HEAVY CONSTRUCTION—LB & CA

† **George W. Timmons Constr. Co.**, 780 W. Lane St., Columbus, O., CA **$712,636**, readiness crew bldg., Lockbourne Air Force Base, ENG-46-022-59-2, COLUMBUS, O. U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va. CD 10/8, under LB.

Friebel-Hartman, Inc., Shelby, O., LB **$116,906** (6 bidders) 270,000 gal. water storage well adjacent to new filtration plant, MANSFIELD, O. City of Mansfield, City Hall, Mansfield, O. Bids Oct. 31. CD 9/25.

ILLINOIS—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield,
cancelled bids to have been opened Oct. 31 base course, b. conc. resurf. and service drives 2.08 mi. North Ave. between Mt. Prospect Rd. and Cornell Ave. in North Lake, Melrose Park and Stone Park, SBI Rt. 54 marked Ill. Rt. 64, Cook Co.; pavement 2.34 mi. FAI Rt. 4 from approx. 2½ mi. southwest of Marion southerly, FAI Rt. 4, Williamson Co. CD 10/17.

Advance Constr. Co., 422 Chestnut St., Hinsdale, Ill., CA $500,000 (2) main trunk sanitary sewers, (3) interceptor sewers and (3) lift stations, DOWNERS GROVE, ILL. Downers Grove Sanitary Dist., 5118 Main St., Downers Grove, Ill. CD 10/22, under LB.

BUILDINGS—LB & CA

▲ **Zehman-Wolf & Sherman Constr. Co.**, 13484 Cedar Rd., Cleveland 14, O. Own Forces, $7,200,000 425 HOMES, Viking Estates, BROOK PARK, O.

▲† **Sam P. Wallace Co.**, 2102 Proctor St., Dallas, Tex. CA $2,124,000, FEDERAL BLDG. renovation and air-conditioning, CINCINNATI, O. General Services Admin., 219 S. Clark St., Chicago, Ill. CD 10/17, under LB.

▲ **Zehman-Wolf & Sherman**, 13484 Cedar Rd., Cleveland 18, O., CA Est. $1,500,000, 150,000 sq. ft. Shoregate SHOPPING CENTER WING, WILLOWICK, O. Shoregate Stores, 17903 St. Clair Ave., Cleveland 10, O. Weinberg & Teare, Citizens Bldg., Cleveland 14, O., archts. CD 5/29.

Carl Lindner Co., 614 Prairie Ave., Aurora, Ill. CA $200,000, 2 story factory addn., AURORA, ILL. Stephens-Adamson Mfg. Co., Ridgeway Ave., Aurora, Ill. Robert H. Shelp, 2 N. Broadway, Aurora, Ill., archt. Bids Oct. 7. CD 10/2.

Robin Constr. Co., 2415 W. Pratt Blvd., Chicago, Ill., CA $850,000, 8 story, bsmnt., 126 unit, brick, APARTMENT, 6300-26 N. Sheridan Rd., CHICAGO, ILL. Rivera Apartments, c/o Robin Constr. Co., 2415 W. Pratt Blvd., Chicago, Ill.

Otto Schulz, 3114 Harrison St., Evanston, Ill. CA $200,000, 1 story, 21,000 sq. ft. FACTORY, 7020 W. Cullom Ave., NORRIDGE, ILL. Grieshaber Mfg. Co., 4501 W. Armitage Ave., Chicago, Ill. Bids Sept. 5. CD 9/2.

O. W. Potter & Sons., Inc., Oak St., Wauconda, Ill. CA $600,000, CHURCH, SCHOOL, CONVENT, PROSPECT HEIGHTS, ILL. St. Alphonsus Parish, 307 N. Wheeling, Prospect Heights, Ill. Pirola & Erbach, 221 N. LaSalle St., Chicago, Ill., archts.

▲ **J. Imhoff Constr. Co.**, Hy. 30, Madison, Wis., CA $1,098,000, general contract NURSERY SCHOOL, MENDOTA, WIS. State Dpt. P. Welfare, Madison, Wis. CD 8/27/57.

Trier Constr. Co., 1401 Brockway St., Saginaw, Mich., CA $435,000, general constr., 4 story HOSPITAL addn., Madison, Montoe and North Fayette Sts., SAGINAW, MICH. Saginaw Osteopathic Hospital, Bd. Trustees, 515 N. Michigan St., Saginaw, Mich. Bids Aug. 28. CD 8/14.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

† **Kan., Olathe**—AIRPORT IMPRVS.—BA 11/25—Dist. P. Wks. Office, Ninth Naval Dist., Bldg. 1-A, Great Lakes, Ill., airfield pavement repairs, Naval Air Station, Spec. No. 22270/58. $250,000-$500,000. CD 6/1/51.

† **Okla., Clinton**—READINESS CREW—BA 11/26—Officer in Charge of Constr., Eighth Naval Dist. Bldg. 16, U. S. Naval Station, New Orleans (Algiers) La., readiness crew bldg. and gate house, Clinton-Sherman Air Force Base, Foss, NBy 19836, Spec. 19836/58. $250,000-$500,000. CD 9/9.

† **South Dakota**—BA 12/2—U. S. Eng., 1709 Jackson St., Omaha 2, Neb. floodwall repair, Big Sioux River, Sioux Falls, ENG-25-066-59-39. $135,000-$175,000. Bids Oct. 16 rejected, LB **$268,064**. CD 10/22, under LB.

† **Tex., Big Spring**—STORAGE, etc.—BA 12/4—U. S. Eng., 100 W. Vickery, Fort Worth, storage, base rocket assembly, Webb Air Force Base, ENG-41-443-59-12. Puckett & French, Big Spring, archts.-engrs. CD 10/10.

† **Kan., Salina**—READINESS CREW BLDG., etc.—BA On Or About 12/9—U. S. Eng., 1800 Federal Office Bldg., Kansas City, Mo. constr. readiness crew bldg. complete with utilities, roads, parking areas, walks, etc. Schilling Air Force Base, ENG-23-028-59-25. CD 9/9.

† **Mo., St. Joseph**—STORAGE BLDG., etc.—BA On Or About 12/11—U. S. Eng., 1800 Federal Office Bldg., Kansas City, Mo., 7,500 sq. ft. single story constr., slab on grade, steel frame, concrete masonry walls, etc. storage bldg. and single story, 2,800 sq. ft. crash truck station, incl. outside utilities, Rosecrans Field, ENG-23-028-59-26. CD 5/28, under LB.

† **North Dakota**—BA On Or About 12/18—U. S. Eng., Riverdale, constr. of Mandan Unit of Lower Heart River, Local Flood Protection, Twp. 139 north, Range 81, Morton Co. ENG-32-015-59-28. CD 10/16, under LB.

BUILDINGS—BA

Tex., Eagle Pass—DWELLING UNITS—BA 12/2—Eagle Pass Housing Auth., 39 brick, veneer, concrete steel dwelling units. $375,000. Plans deposit $25. Olen Boese & Assocs., 905 T&P Bldg., Fort Worth, archts. CD 11/7.

▲ **Mo., Kansas City**—HOUSING—BA 12/3—Kansas City Housing Auth., 1220 Independence Ave., Kansas City, Mo., Wayne Miner Housing Proj., incl. five 10 story, 350 units rein.-con., structural steel, concrete block, brick. $5,084,000. Plans deposit $100. Neville, Sharp, & Simon, 25 E. 12th St., Kansas City, Mo., archts. CD 5/13/55.

▲ **Mo., St. Louis**—OFFICE—BA 12/4—State of Missouri, Planning & Constr., 100 State Capitol, Jefferson City, 3 story, bsmnt. office bldg., for State Division of Employment Security, Broadway and Washington Ave. $1,450,000. Plans deposit $50. Hellmuth, Obata & Kassabaum, Inc., 315 N. 10th St., St. Louis 1, Mo., archts. CD 7/17.

BUILDINGS—SLC

Mo., Columbia—SHOPPING CENTER—Commonwealth Theaters, Inc., 215 W. 18th, Kansas City, Mo., soon lets contract 11-unit, 42,900 sq. ft. steel frame, brick and block shopping center incl. parking for 590. Over $500,000. Plans deposit $25. Geis-Hunter-Ranos, 7920 State Line, Kansas City, Mo., archts. CD 3/25.

HEAVY CONSTRUCTION—LB & CA

▲ **MINNESOTA**—State Hy. Dpt., 1246 University Ave., St. Paul,

Ashbach Constr. Co., 1910 W. County Rd. C, St. Paul, Minn., CA **$4,290,495**, grade, sand grav., sub-base, crushed rock base, plant mixed bit. surf. concrete paving bridges and utility and bldg. removal and relocation 12 projects all in one contract, 3.4 mi. near Mendota bridge and TH 5 to Fort Snelling, Hennepin Co. Bids Oct. 17. CD 10/21.

B. L. Anderson, Inc., 327 Guaranty Bldg., Cedar Rapids, Iowa, CA $135,235, 28.5 mi. road surf. and 150 mi. resurf. on secondary county roads, CEDAR RAPIDS, IOWA, Linn Co., Court House, Cedar Rapids, Iowa. Bids Oct. 17.

D. F. Cahill, 4721 Denver, Kansas City, Mo., LB **$156,250**, est. $231,000 (11 bidders), WW imprvs. Master Network Contr. No. 2, constr., complete in place, underground reservoir and pump station, GRANDVIEW, MO. Jackson Co. P. Water Supply Dist. No. 1, Grandview, Mo. Bids Oct. 30. CD 10/13.

Henkle Constr. Co., 307 Boyce Greeley Bldg., Sioux Falls, S. D., CA **$888,395**, WW imprvs. addn. to city's water treatment plant and booster pumping station incl. four 1 mgd filters, rapid mix, slow mix and prime settling basins, chemistry bldg., CO_2 generators, pneumatic conveying equipment, ABERDEEN, S. D. City, City Hall, Aberdeen, S. D. Bids Oct. 14, awarded Oct. 20. CD 10/22, under LB.

Pittsburgh-Des Moines Steel Co., 1015 Tuttle St., Des Moines, Iowa. CA **$172,300** (3 bidders) 750,000 gal elev. steel water tank and 200,000 gal. elev. steel water tank, HURON, S. D. City, City Hall, Huron, S. D. Schoell & Madson, 8134 Minnetonka Blvd., Minneapolis, Minn., engrs. Bids Nov. 3. CD 4/4/57.

▲ **KANSAS**—State Hy. Comn., Junction City, Bids opened 10/31.

Kan.—The El Dorado Materials Co., Inc., Box 1993, Wichita, Kan., LB **$129,930** (3 bidders), A-B, b. conc. and double b. surf. treatment 10.345 mi. beginning approx. 1 mi. north of Minneapolis; west and north on County Hy. Co. Proj. 72 S 61(7), Ottawa Co.;

Kan.—San-Ore Constr. Co., Inc., Box 417, McPherson, Kan., LB **$167,557** (11 bidders), grading 7.579 mi. SP 4-59 S 969(14) Pts. I & II, McPherson Co.;

Kan.—Geo. Bennett Constr. Co., 3300 N. 91 St., Bethel, Kan., LB **$1,090,734** (4 bidders), grading 2.382 mi., Proj. 70-31-1 70-5(22) 294 Pt. II, Geary Co.;

Kan.—Grosshans & Petersen, Inc., Box 167, Marysville, Kan., LB **$380,988** (9 bidders), grading 5.067 mi. Proj. 77-31 DF 055-3(4), Geary Co.;

Kan.—List & Clark Constr. Co., 2 W. 40th St., Kansas City 11, Mo., LB **$513,478** (5 bidders), grading 1.835 mi., Proj. 70-31 I 70-5(22) 294 Pt. I, Geary Co.;

Kan.—**Sherwood Constr. Co., Inc.**, Box 994, Wichita, Kan., LB **$430,750** (4 bidders), grading 2.281 mi. Proj. 70-31 I 70-5(22) 294 Pt. III, Geary Co. CD 10/17.

▲ **KANSAS**—State Hy. Comn., Junction City, Bids opened 10/31.

Maxwell Bridge Co., Inc., Columbus, Kans., LB **$100,973** (5 bidders), Br. No. 70-31-7.1, Proj. 70-31 I 70-5 (22) 294 Part I; LB **$230,854** (6 bidders), Br. No. 70-31-7.4 Proj. 70-31 I 70-5(22) 294 Part I; LB **$691,570** (5 bidders), Br. No. 70-31-9.2. Proj. 70-31 I 70-5(22) 294 Part II; LB **$190,693** (5 bidders), Br. No. 70-31-10.3. Proj. 70-31 I 70-5(22) 294 Part II; LB **$81,802** (6 bidders), Br. No. 70-31-10.4. Proj. 70-31 I 70-5(22) 294 Part III, all in Geary Co. CD 10/17, under Streets and Roads.

Dwight Haworth, N. Locust St., Ottawa, Kan., CA **$125,700**, Est. $135,000, altering storm sewers thru flood wall gates, OTTAWA, KAN. City, City Hall, Ottawa, Kan. A. C. Kirkwood & Assocs., 7600 The Paseo, Kansas City, Mo., engrs. Bids Oct. 22, awarded Oct. 27.

Wea Constr. Co., Paola, Kan., CA **$124,300**, est. $125,000 steel rein.-con. constr. for raising and extending Main Street Bridge, OTTAWA, KAN. City, City Hall, Ottawa, Kan. A. C. Kirkwood & Assocs., 7600 The Paseo, Kansas City, Mo., engrs. Bids Oct. 22, awarded Oct. 27.

▲† **Cosmo Constr. Co.**, 6911 Peerless St., Houston, Tex., CA **$1,289,760**, portion east embankment, McGee Bend Dam, Angelina River, ENG-41-443-59-7, TEXAS. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Oct. 23. CD 10/27, under LB.

† **MONTANA**—Bureau P. Rds., Dpt. Commerce, c/o Montana Contractor's Assn., Helena, Bids opened 11/4,

Naranche & Konda, 2801 S. Montana St., Butte, Mont., CA **$428,728**, est. $463,452 (13 bidders) clearing, grubbing, grade, etc. and constr. two bridges, one 105 and other 122 ft. long on West Gallatin Hy. Proj. 42-K2-L3, Gallatin Co. CD 10/22.

MONTANA—State Hy. Comn., Helena,

Peter Kiewit Sons' Co., 501 St. John's Ave., Billings, Mont., CA **$554,932**, 949 ft. steel, concrete bridge over Clark Fork River near Thompson Falls, Sanders Co. Bids Nov. 6. CD 10/28.

Williams Constr. Co., Lewistown, Mont., LB **$141,298**, 34½ mi. 69,000 volt transmission line between Custer and Ballantine, Yellowstone Co., MONTANA. Yellowstone Valley Elec. Co-operative, Huntley, Mont. CD 7/25/55.

COLORADO—State Hy. Dpt., 4201 East Arkansas, Denver,

Peter Kiewit Sons' Co., 1950 South Colorado Blvd., Denver, Colo., CA **$198,840**, est. $226,000, plant mixed asph. surf. 3.479 mi. State Hy. No. 75, near the Martin Plant, Colo. Proj. No. S 0064 (4) Jefferson Co. Bids Nov. 6. CD 10/24.

COLORADO—Bureau P. Rds., Rm. 242, Bldg. 40, Denver Federal Center, Denver,

Harrison Constr. Co., 1566 South Bannock, Denver, Colo., CA **$532,583**, constr. Proj. 1-A B. por. F, grading and bit. surf. 5.322 mi. Park Entrance Rd., Mesa Verde National Park, Montezuma Co. Bids Nov. 5, awarded Nov. 6. CD 10/21.

BUILDINGS—LB & CA

Rinderknecht Constr. Co., 133 F Ave., N.W., Cedar Rapids, Iowa, CA Est. **$500,000**, PACKING PLANT addns., CEDAR RAPIDS, IOWA, Wilson & Co., Inc., 3 St. and 16 Ave. S.E., Cedar Rapids, Iowa. Henschien, Evards & Crombie, 59 E. Van Buren St., Chicago, Ill., archts.

E. A. Carlstrom Constr. Co., Mankato, Minn., CA **$794,870** general constr. completion and extension of SCIENCE and ARTS BLDG., at Mankato State College, MANKATO, MINN. State Dpt. Admin., 19 State Capitol, St. Paul, Minn. Bids Oct. 30. CD 11/6, under LB.

Henry R. Schaefer Constr. Co., 1326 W. 3 St., Davenport, Iowa, LB **$589,450**, 4 story DORMITORY BLDG., DAVENPORT, IOWA, St. Ambrose College, 518 W. Locust St., Davenport, Iowa. Bids Oct. 15. CD 9/16.

J. C. Nichols, 310 Ward Parkway, Kansas City 12, Mo., Owner Builds, Over $500,000, 22,000 sq. ft. Red Bridge SHOPPING CENTER, incl. parking for 400, 110th and Red Bridge Rd., KANSAS CITY, MO. Edward W. Tanner & Assocs., 310 Ward Parkway, Kansas City 12, Mo., archts. CD 6/28.

McCarthy Bros. Constr. Co., 4903 Delmar Blvd., St. Louis Mo., LB **$984,940** (3 bidders), Proj. MO-5-1, sixteen 100 unit frame, masonry, etc. APARTMENTS and COMMUNITY BLDG., KINLOCH (SOUTH KINLOCH PARK P. O.), MO. Kinloch Housing Auth., 305 Lix Ave. and P. O. Box 718, Kinloch, Mo. Bids Oct. 31. CD 10/28.

Burton & Lee Realty Co., 5865 Hampton Ave., St. Louis 9, Mo., Owner Builds, $500,000, 50 RESIDENCES, Manchester Forest Sub-division off Sulphur Springs Rd. south of Manchester Rd., ST. LOUIS COUNTY, MO.

Douros Realty & Constr. Co., 6548 Clayton Rd., St. Louis 17, Mo., CA Est. over **$500,000**, BOWLING ALLEY BLDG. incl. 32 lanes with automatic pinsetters, cocktail lounge, swimming and wading pools, etc. Tesson Ferry Rd. south of Lindberg Blvd., ST. LOUIS COUNTY, MO. V. G V. Realty Co., c/o Palace Bowl, Inc., 4925 Southwest Ave., St. Louis 10, Mo. (Correction-contractor) CD 10/8, under CA.

L. J. McNeary Constr. Co., 9715 Gravois Rd., Affton 23, Mo., Owner Builds, **$436,990**, 55 addnl. frame DWELLINGS, Tara No. 6 Sub-Division southwestern part of ST. LOUIS COUNTY, MO.

M. W. Watson Constr. Co., First Natl. Bank Bldg., Topeka, Kan., CA **$503,275**, est. $500,000, NURSES HOME and SCHOOL, incl. 3 story, 52 x 121 ft. DORMITORY and 1 story 46 x 126 ft. SCHOOL, FORT SCOTT, KAN. Mercy Hospital, Fort Scott, Kan. Bids Oct. 1. CD 9/29.

John M. Fogel Constr. Co., 6801 Tomhawk Rd., Kansas City 15, Mo., CA **$381,858**, est. $350,000, 3 story, concrete block, brick, steel CHURCH EDUCATIONAL BLDG., PRAIRIE VILLAGE, KAN. United Presbyterian Church, 67th St., and Mission Rd. Prairie Village Kan. Wm. M. Conrad, 4149 Pennsylvania, Kansas City, Mo., archt. CD 8/25.

† **Fluor Corp.**, 2500 Atlantic Ave., Los Angeles, Calif. CA **$700,000**, total est. $12,000,000, HELIUM EXTRACTION PLANT, Keyes Field, Cimarron Co., BOISE CITY, OKLA. Dpt. of Interior, Interior Bldg., 19 and C Sts., Wash., D. C. CD 9/30.

Spaw-Glass, Inc., Box 6712, Houston 5, Tex., CA **$350,698**. CLINIC-HOSPITAL, Hy. 73 and Rock Glen St. Green Bayou Area, HOUSTON, TEX. Rock Glen Hospital Co., A. R. Fairchild, 4054 O'Meara St., Houston, Tex., Nyal L. Cline, 1120 W. 43 St., Houston, Tex., archts. CD 11/3.

▲ **Geo. A. Fuller Co.**, 412 Gibraltar Life Bldg., Dallas, Tex., CA Est. **$2,500,000**, 15 story, 145,000 sq. ft. OFFICE to be known as "Gulf Bldg." on Wall St., MIDLAND, TEX. R. E. Dumas Milner, 3691 Canton Rd., Jackson, Miss. CD 8/19.

▲ **Palmer Constr. Co.**, 1324 Central Ave., W., Great Falls, Mont., CA **$1,265,687**, general constr. Cascade County Convalescent HOSPITAL, GREAT FALLS, MONT. Cascade County, Courthouse, Great Falls, Mont. CD 9/22, under LB.

FAR WEST

HEAVY CONSTRUCTION—BA

Calif., Los Angeles—BA 11/28—Los Angeles Co. Hall of Records, sanitary sewers, Cogswell Rd. C.I. 1962, El Monte, $214,365. CD 11/20/51.

† **Calif., Pasadena**—RESERVE—BA 12/2—Dist. P. Wks. Office, 11th Naval Dist., 1220 Pacific Hy., San Diego, constr. Naval and Marine Corps Reserve Addn. at Naval Reserve Training Center, IFB 19417/58B.

† **Calif., Muroc** — FUEL DISPENSING STATION — BA 12/5—Directorate of Procurement, Edwards Air Force Base, constr. fuel dispensing station, Edwards Air Force Base, IFB 04-611-59-75B. CD 9/10.

BUILDINGS—BA

▲ **Wash., Longview**—COLLEGE—BA 12/3—School Dist. No. 3, six, total 76,000 sq. ft. rein.-con., masonry Lower Columbia Junior College bldgs. $1,000,000. Plans deposit $50 for general contract. McGuire & Muri, 231 Broadway, Tacoma, archts. CD 10/3.

▲ **Wash., Olympia** — GENERAL ADMIN. — BA 12/5 — State Dpt. Admin., General Admin. Bldg., 5 story, bsmnt., 120,000 sq. ft. rein.-con. General Admin. Bldg. addn. $2,000,000. Plans deposit $25. Harmon, Pray & Detrich, 2000 5 Ave., Seattle, Zone 1, archts. CD 5/23/57.

Calif., Oakland—SCHOOL—BA 12/9—Oakland Bd. Educ., 1025 2nd Ave., 34,000 sq. ft. slab on grade, stucco exterior, King Elementary School. $593,625. Plans deposit $25. Fingado & Kern & David Horn Assoc., 2910 Telegraph St., archts. CD 6/8/56.

▲ **Calif., San Leandro**—LIBRARY CENTER—BA 12/17—City, City Hall, 1 story, 40,000 sq. ft. community library center, $1,100,000. Francis J. McCarthy, 693 Mission St., San Francisco, archt. CD 10/14.

HEAVY CONSTRUCTION—LB & CA

† **U. S. Eng.**, 1209 8th St., Sacramento, Calif., cancelled bids to have been opened Dec. 2, three 2 story concrete block officers quarters consisting of walks, curbs, gutters, etc. Stead Air Force Base, Spec. 2448, ENG-04-167-59-19, RENO, NEV. Est. $800,000. Will re-advertise. CD 10/24.

▲† **L. A. Hopkins Co.**, 221 S. 3 St., Pasco, Wash., LB **$1,628,232**, (4 bidders), 800 units Wherry Act Housing enlarging and remodeling, Larson Air Force Base, Inv. 59-16, MOSES LAKE, WASH., Procurement Office, Larson Air Force Base, Moses Lake, Wash. Bids Nov. 5. CD 10/17.

† **Robert J. Genofile Inc.**, 3712 Park Pl., Montrose, Calif. LB **$175,879** (14 bidders) maintenance control and operations bldg. Vandenburg Air Force Base, ENG-04-353-59-2B, LOMPOC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Nov. 4.

Petroleum Combustion & Eng. Co., 11941 Wilshire Blvd., Los Angeles, Calif., CA **$484,950**, gas compressor station at Gas 'Plant No. 6, Carson St. and San Gabriel River Channel, LONG BEACH, CALIF. City, City Hall, 205 W. Broadway, Long Beach, Calif. Bids Oct. 22, awarded Oct. 28. CD 10/2.

Sully-Miller Contg. Co., 3000 E. South St., Long Beach, Calif., CA **$308,684**, constr. Long Beach Freeway, Southerly Terminus, Contr. 2, LONG BEACH, CALIF. City, 205 W. Broadway, Long Beach, Calif. Bids Oct. 23 awarded Oct. 28. CD 10/7.

Anjoe Constr. Co., 604 N. Montebello Blvd., Montebello, Calif., LB **$608,651**, est. $875,200 (14 bidders) Proj. 51 along Centenella Ave. from Baliona Creek to McCune Ave., Culver City, LOS ANGELES, CALIF. Los Angeles Co. Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Oct. 31. CD 10/7.

Bovee & Crail Constr. Co., 15134 S. Indiana Ave., Paramount, Calif. CA **$200,000**. supertanker facility, incl. pump station, piping earthwork, etc. at Los Angeles Harbor, LOS ANGELES, CALIF. Union Oil Co., 461 S. Boylston St., Los Angeles, Calif.

† **Southern Eng. & Constr. Co.**, 2650 Cherry St., Long Beach, Calif., LB **$243,853**, (8 bidders), constr. fuel storage imprvs. at Naval Air Missile Test Center, Spec. 19449-58, POINT MUGU, CALIF. Eleventh Naval Dist., 1220 Pacific Hy., San Diego, Calif. Bids Oct. 28. CD 10/7.

A. Teichert & Son, Inc., P. O. Box 928, Sacramento, Calif. LB **$168,243** (3 bidders) subdivision imprvs. incl. plant mix surf. curb, gutters streets signs, manholes, related work, Verne Tract 1 and 2, SACRAMENTO, CALIF. Sacramento Co., c/o Clk. of Bd. County Admin. Bldg., Sacramento, Calif. Bids Nov. 5. CD 10/14/48.

▲ **E. A. Irish Co.**, Box 39701, Griffith Station, Los Angeles, Calif. LB **$6,558,445** (7 bidders) constr. portion of third section San Diego Aqueduct 16.8 mi. of 66 and 69 in. pipe, Spec. 203, SAN DIEGO, CALIF. San Diego County Water Auth., 2750 4th Ave., San Diego, Calif. Bids Nov. 7. CD 9/23.

BUILDINGS—LB & CA

▲† **Shaw & Estes, Inc.**, Box 2399, Dallas, Tex., LB **$1,587,000**, est. $2,873,000, (6 bidders), Phase III, constr. plutonium test reactor facilities at Hanford Works, incl. reactor vessel, storage tank, coolant sys., etc., RICHLAND, WASH. Atomic Energy Comn., P. O. Box 550, Hanford Operations Office, Richland, Wash. Bids Nov. 5. CD 10/23.

▲ **Secrest & Fish, Inc.**, 1909 W. Whittier Blvd., Whittier, Calif. CA **$603,212** CHEMISTRY-PHYSICS BLDG. addn., EL CAMINO, CALIF. El Camino Junior College Dist., Crenshaw Blvd. and Redondo Beach, El Camino, Calif. Bids Oct. 7, awarded Oct. 29. CD 10/16, under LB;
Herbert Goldsworthy, Box 710, Santa Monica, Calif. CA **$506,000**. APPLIED ARTS BLDG. (El Camino, Calif.). 11/20/58.

▲ **Blaw-Knox Co.**, 300 6th Ave., Pittsburgh, Pa., CA Est. **$5,000,000**. universal slabbing MILL, FONTANA, CALIF. Kaiser Steel Div., Henry J. Kaiser Co., 1924 Broadway, Oakland, Calif. CD 4/15/57.

Arthur M. Anderson Corp., 5000 Valley Blvd., Los Angeles, Calif. CA **$598,000**. ADMINISTRATION FACILITIES and CLASSROOM UNITS, LANCASTER, CALIF. Antelope Valley Jt. Union High School Dist., Lancaster, Calif. CD 9/26, under LB.

West America Constr. Co., 7807 Sunset Blvd., Los Angeles, Calif. Owner Builds. **$687,000**, 3-2 story, stucco APARTMENTS, Rose Ave. and Sepulveda Blvd., LOS ANGELES, CALIF. Richard L. Dorman & Assoc., 261 N. Robertson, Beverly Hills, Calif., archts. Albert Erkel, 3515 Cahenunga Ave., Los Angeles, Calif., engr.

Chas. K. Mason, 3851 Sepulveda Blvd., Culver City, Calif. Owner Builds. **$855,000**. 95 stucco DWELLINGS, Vista Verde, Tract No. 2, MOORPARK, CALIF.

▲ **Cater Co.**, 2975 Wilshire Blvd., Los Angeles, Calif. CA **$1,099,000**. constr. ADMINISTRATION, GYMNASIUM, INDUSTRIAL and AERONAUTICAL BLDGS. at Chafee College site near Alta Loma, ONTARIO, CALIF. Chaffey Junior College Dist., 4 and Euclid Sts., Ontario, Calif. CD 9/22, under LB.

Princes Homes, Inc., 1369 "B" St., San Diego, Calif. Owner Builds. **$991,680**. 68 frame, stucco DWELLINGS, Casement St., Galahad Dr., Cairo Ct., Princes Park Estates Tract, SAN DIEGO, CALIF.

▲ **Pardee Bldg. Corp.**, 10639 Santa Monica Blvd., Los Angeles, Calif. CA **$1,632,660**. 167 frame, stucco DWELLINGS Conrad Ave., Roscrea Ave., Aberdeen St., Clairmont Mesa Tract, SAN DIEGO, CALIF. Pardee Phillips of California, 10639 Santa Monica Blvd., Los Angeles, Calif.

▲ **M&K Corp.**, 519 California St., San Francisco, Calif. LB **$12,266,000** (6 bidders) general constr., contr. incl. plumbing, mechanical, electrical, air conditioning, ventilation for 7 story, ground floor 637,000 sq. ft. floor area concrete HALL OF JUSTICE with marble facing with an adjacent 1 story and roof deck parking structure bounded by 7th, Harriet, Bryan and Harrison St. SAN FRANCISCO, CALIF. City and San Francisco Co. Dpt. P. Wks., City Hall, San Francisco, Calif. Bids Nov. 5. CD 8/22.

Exhibit Homes, Inc., 8900 W. Olympic Blvd., Beverly Hills, Calif. Owner Builds. **$620,000**, 62 stucco DWELLINGS, Tr. 1047, THOUSAND OAKS, CALIF.

CANADA

HEAVY CONSTRUCTION—LB & CA

▲ **Mannix Ltd.**, 737 8th Ave. W., Calgary, Alta. LB **$4,220,092**, resurf. Runway 02-20, strengthing, wid'n. Runway 11-29 to 200 ft. and extending it to 14,000 ft. with taxiways, aprons, lighting facilities and related work at airport, NAMAO, ALTA. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Bids Oct. 21. CD 10/6.

▲ **Forbes & Sloat Ltd.**, 654 Union St., Fredericton, N. B. CA **$1,512,805**, roads, drainage, grounds development concrete aprons and taxiways, water and steam distr. sys., Royal Canadian Air Force Station, SUMMERSIDE, P. E. I. Defence Constr. (1951) 56 Lyon St., Ottawa, Ont. CD 10/21, under LB.

QUEBEC—Dpt. P. Wks., Parliament Bldgs., Quebec City, **Cie Sud Ltee.**, St. Valere, Que. CA Approx. $150,000, bridge, St. Valere, Arthabasca Co. Awarded Oct. 27.

▲ **Miron Freres Ltee.**, 2201 Cote St. Michel, Montreal, Que., CA **$1,551,791**, sidewalks, curbs and pavements, Metropolitan Blvd., MONTREAL, QUE. Montreal Metropolitan Comn., 506 St. Catherine St. E., Montreal, Que. CD 11/7, under LB.

BUILDINGS—LB & CA

▲ **Cutala Bros. Ltd.**, 150 James St. S., Hamilton, Ont. Owner Builds **$2,000,000** OFFICE BLDG., James and Augusta St., HAMILTON, ONT. Huget, Secord & Pagani, 299 Main St. E., Hamilton, Ont., archts.

Cetto Constr., 2291A Yonge St., Toronto, Ont. Owner Builds. **$435,000**, 5 story, brick, concrete block

(Continued on page 92)

Design a 2-lane steel bridge to cross a modern

AMERICAN BRIDGE DIVISION of United States Steel announces a $44,000 STEEL HIGHWAY BRIDGE DESIGN COMPETITION dedicated to stimulating the engineering mind to a more imaginative, more effective use of steel in the construction of small bridges.

If you, as a professional or design engineer or as a college engineering student, can come up with a more imaginative, attractive and economical design, not only may you win up to $15,000 in award money, but your efforts may contribute materially to the most challenging road-building program ever undertaken. For, according to conservative estimates, the tremendous 41,000-mile Federal Highway Program will call for the construction of at least a bridge a mile!

The competition involves solving a relatively simple but important problem that will not demand too much of your time.

PROBLEM: Get two lanes of traffic across a modern 4-lane highway, in accordance with the standards for today's highways.

OBJECTIVES: Originality of design, greater utilization of the inherent properties of steel, economy, and aesthetic appeal.

REQUIREMENTS: Just one. The steel bridge must comply with the Geometric Standards for the National System of Interstate and Defense Highways using H-20-S16-44 loading. The type of structure, the type of connections, span length and number of piers, if any, are completely up to you since you are designing with steel.

ELIGIBILITY: The competition is open, without geographic restrictions, to all professional and design engineers and college engineering students except employees and/or members, and their immediate families, of the following firms and groups:

- United States Steel and its subsidiaries, divisions, agents and dealers
- Structural steel fabricating firms
- American Institute of Steel Construction members
- Rules Committee and Judges

See list of awards at right.

RULES AND JUDGING: The competition will be under the supervision of the American Institute of Steel Construction, which has appointed a Rules Committee and a panel of judges composed of prominent consulting engineers and architects.

DEADLINE: May 31, 1959.

SEND FOR YOUR ENTRY BOOKLET NOW: Contains complete information on the Steel Highway Bridge Design Competition—everything you need to know to prepare your entry. Just fill in and mail the coupon and get started with your design without delay.

USS is a registered trademark

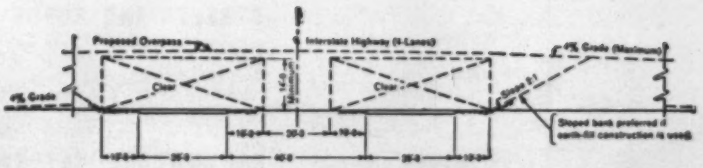
highway... $44,000 in cash awards!

Awards for Professional Engineers

1st Award	$15,000.00
1st Honorable Mention	$10,000.00
2nd Honorable Mention	$ 5,000.00
Five 3rd Honorable Mentions	$1,000.00 each

Awards for College Engineering Students

1st Award	$4,000.00
1st Honorable Mention	$2,000.00
2nd Honorable Mention	$1,000.00
Four 3rd Honorable Mentions	$500.00 each



ELEVATION and CLEARANCE DIAGRAM

American Bridge Division of United States Steel

General Offices: 525 William Penn Place, Pittsburgh, Pa.

Competition Editor, Room 1831, American Bridge Division
525 William Penn Place, Pittsburgh, Pennsylvania

Please send me a copy of your $44,000 Steel Highway Bridge Design Competition entry booklet.

Name.....

Professional or Design Engineer / Engineering Student } (Check one).....

Address.....

City.....State.....

(Continued from page 89)

APARTMENT, 115-117 Lake Shore Rd., TORONTO, ONT. CD 7/11.

▲ **Eastern Constr. Co. Ltd.,** 416 Mount Pleasant Rd., Toronto, Ont. CA $1,060,000, 1 and 2 story, bsmntless, 120x280 ft. and 65x280 ft. structural steel and rein.-con. frame, concrete block, brick DON MILLS SENIOR SECONDARY SCHOOL, Lawrence Ave. E., TORONTO, ONT. North York Bd. Educ., 7 Kenneth Ave., Toronto, Ont. Awarded Oct. 31. CD 10/31, under LB.

C. A. Smith Contg. Co. Ltd., 1048½ Kingston Rd., Toronto, Ont., CA $592,031 (16 bidders), 1 and 3 story abt. 37,000 sq. ft. precast, brick, block SCHOOL, Bicknell Ave., TORONTO, ONT. Twp. of York, Bd. Educ., 2 Trethewey Dr., Toronto, Ont. Bids Oct. 27, awarded Oct. 31. CD 10/3.

▲ **Eastern Constr. Co. Ltd.,** Airport Rd., Windsor, Ont. LB $1,395,000 (16 bidders), 3 story, bsmnt., structural steel frame FEDERAL BLDG., WINDSOR, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Oct. 22. CD 10/16.

U. S. POSSESSIONS

BUILDINGS—LB & CA

▲ **Hawn Dredging & Constr. Co.,** 3150 Ala. Moana Blvd., Honolulu, Hawaii, CA $1,700,000, design and construct INDUSTRIAL BLDG., 2969 Kalakua Ave., HONOLULU, T. H. Hawaiian Dredging & Constr., 1350 Ala Moana Blvd., Honolulu, T. H. Vladimir Ossipoff, Hawn Life Bldg., Honolulu, T. H., archt.

Ben Hayashi Ltd., 142 Mokauea St., Honolulu, T. H., CA $700,000, design and construct COMMERCIAL BLDG., HONOLULU, T. H., Amer. Mutual Life Insurance Co., Alaska and Beretania Sts., HONOLULU, T. H. Vladimir Ossipoff, Hawn Life Bldg., Honolulu, T. H., archt.

▲ **Aloha Constr. Co.,** c/o 1639 Kapiolani Blvd., Honolulu, T. H., CA $1,500,000, 56 unit APARTMENT, HONOLULU, T. H., Kalakaua Land Development Inc., 2801 Coconut Ave., Honolulu, T. H., Takashi Anbe, A. I. A., 1639 Kapiolani Blvd., Honolulu, T. H., archt.

Mark Veracruz, Honolulu, T. H., CA $750,000, design and construct BOWLING CENTER, split level structure, 20 lane bowling alley, 5 business offices, 4 stories, restaurant, cocktail lounge, booths along alley to allow bowlers to dine while bowling, HONOLULU, T. H. John H. Magoon, Lilipuna Rd. and Kam Hy., Honolulu, T. H.

▲ **Kenneth K. Sato,** 244 Kalihi St., Honolulu, T. H., CA $1,000,000, design and construct 112 unit APARTMENT, HONOLULU, T. H., McCully Development Co., 2072 S. King St., Honolulu, T. H.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Mo., Florissant**—City, City Hall, 619 St. Francois St., Florissant, voted $1,200,000 bonds Oct. 27, water distr. sys. expansion, incl. 2½ m.g. water storage tank. Horner & Shifrin, 1221 Locust St., St. Louis, Zone 3, consult. engrs. CD 10/8.

▲ **New Jersey**—State of New Jersey, Trenton, voted $45,850,000 bonds Nov. 4, two reservoirs at Round Valley and Spruce Run, Hunterdon Co. CD 9/12.

N. C., Coats—Town, Mayor W. R. Turlington, City Hall, voted bonds Oct. 25, water sys. $215,000.

N. C., Jonesville—Town, Town Hall, WW imprvs. $100,000. Moore-Gardner & Assocs., S. Fayetteville St., Asheboro, consult. engrs. Bids in January.

S. C., North Augusta (Br. Augusta, Ga.)—City, City Hall, water filter plant addn. $100,000. Zimmerman, Leopold & Evans, 525 Telfair St., Augusta, Ga., consult. engrs.

Tex., Houston—Bunker Hill Village Council, c/o Dean E. McNabb, 11818 Bayhurst Dr., water mains, $175,000; water storage (elev.) $75,000. water supply, distr. laterals, $125,000, Bunker Hill. Wm. F. Sullivan and Wyatt C. Hedrick & Stanley, 5201 Fannin St., consult. engrs.

Tex., La Pryor—City, City Hall, water plant. $128,000; water lines $45,000.

▲ **Tex., Odessa**—City, City Hall, defeated bonds Oct 28, SW rehabilitation $125,000, water storage $150,000, water lines and supply $875,000. CD 10/15.

▲ **Utah, Price**—Bd. Comrs., Carbon Co., Price City Hall, Price, River Imprvt. Dist. to incl. waterworks plant and complete culinary water sys. $2,250,000.

▲ **Va., Falls Church**—City, City Hall, voted $1,500,000 bonds Nov. 4, water sys. imprvs., exten. CD 4/13/54.

▲ **Wash., Port Angeles**—City, City Hall, relay 18,562 ft. steel or c.i. pipe main supply line from intake, $410,000; relay 18,562 ft. steel or c.i. pipe main supply line, $390,000; 7 m.g. reservoir, $446,750; pipe line from reservoir to Reservoir No. 2 on Lincoln Heights, $195,096; pipe line from Cherry St. to reservoir, $214,000; 24 in. line from Reservoir No. 1 on Peabody Heights to Park Ave., $50,000; line from reservoir main line above Park Ave. to Cherry St., $169,000. Work may start next year. CD 6/3/52.

SEWERS, WASTE DISPOSAL

Conn., Manchester—Town, Town Hall, sewers, 13 streets. Woodridge Tract. $150,000. CD 3/25.

Fla., Baldwin—Town, Town Hall, sewage disposal plant and sewer lines, $400,000. Russell & Axon, P. O. Box 1431, Daytona Beach, consult. engrs.

Fla., Homestead—City, City Hall, sanitary sewers, N. Krome Ave. $140,000. William Sydow, 2361 Coral Way, Miami, consult. engr.

Fla., Vero Beach—City, City Hall, sanitary sewers, Business area and mainland, south of Main Canal. $200,000. Gee & Jensen, 117½ S. Dixie Hy., West Palm Beach, consult. engrs.

Ga., Marietta—City, City Hall, enlarge secondary sewage treatment plant, interceptor lines, $830,000. Merritt & Welker, 410 Roswell St., consult. engrs. CD 10/8/51.

Iowa, Paulina—Town, Town Hall, sewage disposal sys. imprvs. $110,000. DeWild & Grant, Engrs., Rock Rapids, consult. engrs. CD 11/8/54.

Ky., Leitchfield—City, City Hall, sewerage sys., intercepting sewers, pumping stations, force mains, secondary type sewage treatment plant. $238,162. Maurice L. Miller, 116 Bauer Ave., Louisville 7, Ky., consult. engr.

▲ **Mo., Cape Girardeau**—City, City Hall, sewerage sys. extens., incl. one or two disposal plants, trunk and lateral sewer addns. $1,130,000. Williamson & Assocs., 6731 Manchester Ave., St. Louis, Zone 10, consult. engrs. CD 12/9.

Mo., Pacific—City, City Hall, force main sewer line to lagoon type disposal area and pumping station, etc. $290,000. Williamson & Assocs., 6731 Manchester Ave., St. Louis 10, Mo., consult. engrs. (Correction-engineers). CD 10/9.

N. C., Huntersville—Town, Town Hall, sanitary sewer imprvs. $170,000. W. K. Dickson, 404½ S. Tryon St., Charlotte, consult. engr.

N. C., Jonesville—Town, Town Hall, sanitary sewer imprvs. $150,000. Moore-Gardiner & Assocs., S. Layetteville St., Asheboro, consult. engrs. Bids in January.

▲ **O., Akron**—Comrs. Summit Co., Courthouse, Mud Brook sanitary interceptor sewer to serve northern part of Tallmadge, northern section of Cuyahoga Falls, and southern Northampton Twp., all of Munroe Falls, Silver Lake and Stow, connecting with Akron sewage plant at Botzum. $1,000,000. Alden E. Stilson & Assoc., 245 N. High St., Columbus, consult engrs. CD 5/6/54.

S. C., North Augusta (Br. Augusta, Ga.)—City, City Hall, sanitary sewer lines extens. $125,000. Zimmerman, Leopold & Evans, 525 Telfair St., Augusta, Ga., consult. engrs.

Tex., Houston—Bunker Hill, Village Council, c/o Dean E. McNabb, 11818 Bayhurst Dr., sanitary sewer lines, $235,000; sanitary sewage disposal, $100,000; sanitary sewerage sys. rehabilitation, $90,000, Bunker Hill. Wm. F. Sullivan and Wyatt C. Hedrick & Stanley, 5201 Fannin St., consult. engrs.

▲ **Tex., Odessa**—City, City Hall, defeated bonds Oct. 28, sanitary sewer lines $850,000, sewage disposal $150,000, sanitary sewerage sys. rehabilitation, $100,000. CD 10/15.

▲ **Wis., Milwaukee**—City, City Hall, incinerator plant, $5,000,000. E. A. Schmidt, city engr. Constr. probably in 1961.

BRIDGES

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15, and City of Toledo, City Hall,
Lucas Co.—bridge across Maumee River, Miami St. and Oregon Rd., Bloomfield St. and Western Ave. $15,000,000. Howard, Needles, Tammen & Bergendorf, 1805 Grand St., Kansas City, Mo., Consult. engrs. Plans will be completed early in 1959. CD 10/29/51.

STREETS AND ROADS

Calif., Burlingame—City, City Hall, extend Carolan Ave. between Broadway and Toxon St. $110,000.

OKLAHOMA—State Hy. Dpt., Capitol 5, Oklahoma City, **Logan Co.**—rebuild 6 mi. Hy. 74 from Crescent to Cimarron River, Crescent, $125,000.

Tex., Odessa—City, City Hall, defeated bonds Oct. 28, street imprvs., paving. $750,000. CD 10/15.

EARTHWORK, WATERWAYS

† **Georgia**—Blue Ridge Mountain Soil Conservation Dist., Mountain City, watershed protection, Hightower Creek, 22,950 acres for Soil Conservation Service, Dpt. of Agriculture, $370,845.

Miss., Natchez—Bd. Supervs. Adams Co., Court House, Natchez, harbor work. $750,000.

▲ **Wash., Vancouver**—Clark-Skamania Soil Conservation Dist. and Clark Co. Drainage Imprvt. Dist. 1, Courthouse, watershed and flood protection project on Lacamas Creek tributaries, $1,068,775, Drainage Dist. No. 5, $45,000 bond election Nov. 4, to aid in financing. CD 8/19/57.

Ont., St. Catherines—City, Municipal Bldg., enclosure of Old Welland Canal, between Glenridge and Chestnut St. $416,000. CD 6/21/48.

AIRPORTS

▲† **Fla., Mayport**—DESTROYER SLIPS—Dist. P. Wks. Officer, Sixth Naval Dist. Bldg. 13, U. S. Naval Base, Charleston, S. C., destroyer slip, Mayport Naval Auxiliary Air Station. $1,450,000. Reynolds, Smith & Hills, P. O. Box 4017, Jacksonville, consult. engrs. CD 9/6.

▲ **Minn., Minneapolis**—OFFICE BLDG.—Minneapolis-St. Paul Metropolitan Airports Comn., 2329 University Ave., St. Paul, plans by W. Butler Co., 1300 Minnesota Bldg., St. Paul, 2 story, bsmnt. with provision for third floor, 180 x 480 ft. office bldg. to be connected with Shops and Store Bldg. and Engine Test Bldg. at Wold-Chamberlain Field. $4,000,000. CD 6/13/55.

▲† **Va., Manassas**—AIR FORCE FACILITIES—U. S. Eng., 1st and Douglas Sts. N.W., Wash., D. C., radar tower FPS-24/35, $500,000-$1,000,000, electric distribution $100,000-$500,000, electric power $100,000-$500,000, utilities $100,000-$500,000, Manassas Air Force Station.

PUBLIC BUILDINGS

▲† **Puerto Rico, Camp Losey**—DORMITORY, etc.—U. S. Eng., Box 4970, Jacksonville, Fla., civilian dormitory W. Mess. $100,000; bachelor officer quarters, $100,000-$500,000; signal admin. bldg., $100,000-$500,000; EM Mess 200 Man, $100,000; 4-56 Men EM Barracks, $100,000-$500,000; fire station, $100,000; dispensary $100,000; post exchange and commissary $100,000-$500,000; family quarters, $500,000-$1,000,000; chapel, $100,000-$500,000; all purpose bldg. $100,000-$500,000; transmitter bldg., $100,000-$500,000; emergency power bldg., $100,000-$500,000; dependent school, $100,000; N. C. O. open mess, $100,000-$500,000; officers open mess, $100,000-$500,000; rehabilitation of utilities $100,000-$500,000; rehabilitation of various bldgs. $500,000-$1,000,000; communications bldg., $500,000-$1,000,000.

▲† **Puerto Rico, Camp Salinas**—BARRACKS, etc.—U. S. Eng., Box 4970, Jacksonville, Fla., EM Barracks, 42 man, $100,000; roads, hardstands and utilities $100,000-$500,000; emergency power bldg. $100,000-$500,-000; receiver bldg. $100,000; EM Mess $100,000.

PUERTO RICO

▲ **Calif., Berkeley** — LIFE SCIENCE — Bd. Regents, University of California, c/o Michael Goodman, archt., 2161 Shattuck Ave., Life Science Bldg. addns. (animal shelters) $2,000,000.

▲ **Calif., Glendale**—SCHOOL—Glendale Unif. School Dist., 411 E. Wilson St., plans by Risley & Gould, 2502 W. 3 St., Los Angeles, convert Clark Junior High School to Clark High School. $1,413,194. CD 6/19.

▲ **Calif., Lake Arrowhead**—SCHOOL—Rim of the World Unified School Dist. voted $1,060,000 bonds Oct. 21, schools.

▲ **Calif., Los Angeles**—SCHOOL—Bd. Educ., 1425 S. San Pedro St., plans by Neutra & Alexander, 2379 Glendale Blvd., Palos Verdes High School, Margate site, Palos Verde. $5,000,000. CD 6/9.

▲ **Calif., Norwalk**—SCHOOL—Cerritos Junior College Dist., 11442 E. Aleondra Blvd., voted $8,000,000 bonds Oct. 21, school. CD 5/16.

▲ **Calif., Pacific Grove**—SCHOOL—Pacific Grove Unif. School Dist., 716 Lighthouse Ave., bond election Feb. 10, 2 elementary schools and convert Junior High School into larger Senior High School. $1,580,000. CD 7/24.

Conn., Hartford—LIBRARY—State—P. Wks. Dpt., 165 Capitol Ave., plans by Jeter & Cook, 36 Pearl St., addn. stack and vault storage, wing on state library for supreme court. $750,000. CD 5/2.

▲ **Conn., Hartford**—STATE OFFICE—State P. Wks. Dpt., 165 Capitol Ave., plans by Walter Crabtree Jr., 195 Fern St., West Hartford, state office bldg. $8,000,000 Bids in Nov. CD 4/4/55.

▲ **Conn., Shelton**—SCHOOL—Town, Bd. Educ. Perry Hill Rd., plans by Val Carlson, Howe Ave., elementary school, Soundview Ave., Western Section. $1,000,000. CD 10/10/57.

Fla., Miami—SCHOOL—Dade Co. Bd. P. Instruction, 275 NW 2 St., Admin. Bldg., plans by Jerry P. Simmons, 1500 Biscayne Blvd., elementary school. Redland Rd. and S. W. 8 St., Homestead, $350,000. CD 11/3/55.

Ill., East Peoria—SCHOOL—City, City Hall, voted $575,000 bonds, school. CD 11/27/46.

Ill., Northbrook—SCHOOL—School Dist. 28, 1000 Waukegan Rd., plans by Jones Duncan & Norman Assocs., 1380 Deerfield Rd., Highland Park, Junior High School, west side Waukegan Rd., south of Walters Ave. $725,000.

▲ **Ill., Roxana**—SCHOOL—Roxana Community School Dist. No. 1, Bd. Educ., voted $1,400,000 bonds Oct. 25, Rosewood School and Junior and Senior High Schools addns. CD 10/8.

Ind., Bedford—SCHOOL—Town of Bedford, Bedford National Bank Bldg., plans by Owens & Strain, archts.-engrs., 305 Citizens National Bank Bldg., elementary school, $344,000.

Ind., Indianapolis—SCHOOL—Trustee, Wayne Twp., West Morris St., grade school, Gridley and West Morris Sts. $600,000.

Kan., Hill City—SCHOOL—Rural High School Dist. No. 3, Graham Co., voted $700,000 bonds Oct. 10, high school. Mann & Co., 201 E. First St., Hutchinson, archts. CD 6/14.

▲ **Kan., Kansas City**—GENERATING UNIT—Bd. P. Utilities, City Hall, 60,000 kw generating unit-Kaw Station, 20th and Kansas. $12,510,000. Burns & McDonnell, P. O. Box 7088, Kansas City, Mo., consult. engrs. CD 7/1/54.

▲ **Mass., Danvers**—SCHOOL—Town, Supt. Schools, High School, constr. high school. $1,200,000. Constr. 1959.

Mass., Revere—SCHOOL—City, School Dpt., 153 Beacon St., plans by Harold M. Turiello, 507 Broadway, elementary school, Ward 4, Newhall and Sargent Sts. $405,000. CD 10/2.

Miss., Water Valley—HOUSING—Water Valley P. Housing Admin., low-rental public housing. $567,000.

N. J., **Cape May Court House**—ARMORY—State of New Jersey, Dpt. Defense, Armory Drive, Trenton, armory. **$560,000.**

N. J., **Carteret**—HOUSING—Housing Auth. of Borough of Carteret, plans by Murray Liebowitz, 214 Smith St., Perth Amboy, Housing Project NJ 47-1. **$750,000.**

N. J., **Dover**—BARRACKS AND MOTOR STORAGE—State of New Jersey, Dpt. Defense, Armory Dr., Trenton, barracks and motor storage. **$400,000.**

▲ N. J., **Perth Amboy**—HOUSING—Housing Auth. of City of Perth Amboy, plans by Murray Leibowitz, 214 Smith St., 200 units public housing, incl. 120 units on Chapman Ave. and 80 units on Cortland St., Proj. NJ 63, **$3,000,000**, CD 5/9/56; 48 unit housing for aged, Rector St., NJ Proj. No. 64, **$800,000.**

N. J., **Pitman**—MOTOR STORAGE—State of New Jersey, Dpt. Defense, Armory Dr., Trenton, motor storage. **$140,000.**

▲ N. J., **Woodbridge**—SCHOOL—Bd. Educ., of Woodbridge Twp., plans by Wiedersun Associates, 1051 Bloomfield Ave., Clifton, second Junior High School, Iselin section. **$1,000,000.**

▲ N. Y., **Kew Gardens**—PARKING GARAGE—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, open deck parking garage, Union Turnpike, 82 Ave., 132 St. and 126 St. **$1,500,000.**

Okla., **Bethany**—SCHOOL—Putnam City, Independent School Dist. 1, 5735 N.W. 39th St., voted bonds Consolidated School addn., **$710,000.** Hudgins Thompson & Ball, 1411 Classen, Oklahoma City, archts.

Okla., **Guymon**—HOSPITAL—City, City Hall, voted bonds Oct. 21, municipal hospital extens. **$400,000.** Noftsger & Lawrence, 2756 N.W. 23 St., Oklahoma City, archts. CD 9/25.

Tenn., **Portland**—FACTORY—City, City Hall, factory, **$300,000** Davis Cabinet Co., lessee.

▲† Tex., **Amarillo**—HOUSING—Amarillo Air Force Base Housing Auth., Brig. Gen. Wm. L. Lee, Base Commander, 200 "Capehart" Housing **2nd section $2,700,000.**

▲ Tex., **Austin**—STUDENT UNION—University of Texas, c/o Main Admin. Bldg., plans by Colemon & Rolfe, 5100 Travis St., Houston, and Page, Southland & Page, Box 855, Austin, student union, **$2,125,000.** Walter P. Moore, 2 Pinedale St., Houston, consult. engr. CD 5/16/58.

Tex., **Canyon**—CLASSROOMS—West Texas State College, plans by Macon O. Carder, 419 Fisk Bldg., and Rob. E. Hucker, 41 Amarillo Bldg., both Amarillo, classrooms bldg. **$350,000.** CD 9/4/56.

Tex., **Commerce**—DORMITORY-DINING—East Texas State College, plans by Geo. L. Dahl, 2101 N. St. Paul St., Dallas, dormitory-dining. **$910,000.**

Tex., **Eagle Pass**—HOUSING—Eagle Pass Housing Auth., 39 dwelling units. **$375,000.** Olin Boese & Assocs., 905 T&P Bldg., Fort Worth, consult. engrs.

Tex., Huntsville—SCHOOL—Huntsville Ind. School Dist. voted bonds Oct. 18, school. **$538,000.** CD 10/10.

▲ Tex., **Odessa**—SCHOOL—Ector County Ind. School Dist. voted **$2,431,000** bonds, constr. schools and school imprvs. CD 10/29.

Tex., **Snyder**—HOSPITAL—Cogdell Memorial Hospital for Scurry Co., plans by Crockett & Assocs., 506 N. Lincoln St., Odessa, hospital. **$500,000.** CD 10/29.

▲ Wis., **Milwaukee**—STORAGE GARAGE—City, City Hall, storage garage for refuse trucks. **$1,000,000.** E. A. Schmidt, city engr. CD 3/4/57.

▲ Wis., **Milwaukee**—STATE OFFICE—State Bldg. Comn., State Capitol, Madison, plans by Roger C. Kirckhoff, state office bldg. **$5,000,000,** preliminary constr. plans to be started in 1959. CD 12/18.

Wis., **Waukesha**—YOUTH RECREATION AND AGRICULTURE—Waukesha Co., plans by Foss-Jansma, Inc., 11109 W. Blue Mound Rd., Wauwatosa, Zone 13, youth recreation and agriculture bldg. **$500,000.**

▲ Wis., **Winnebago**—HOSPITAL—State Dpt. P. Welfare, Madison, hospital addns. **$7,000,000.** CD 7/19/54.

COMMERCIAL BUILDINGS

Ala., **Selma**—SCHOOL—Alabama Lutheran Academy & College, school. **$500,000.**

Ark., **Springdale**—HOSPITAL—Springdale Memorial Hospital, constr. hospital addn. **$435,000.**

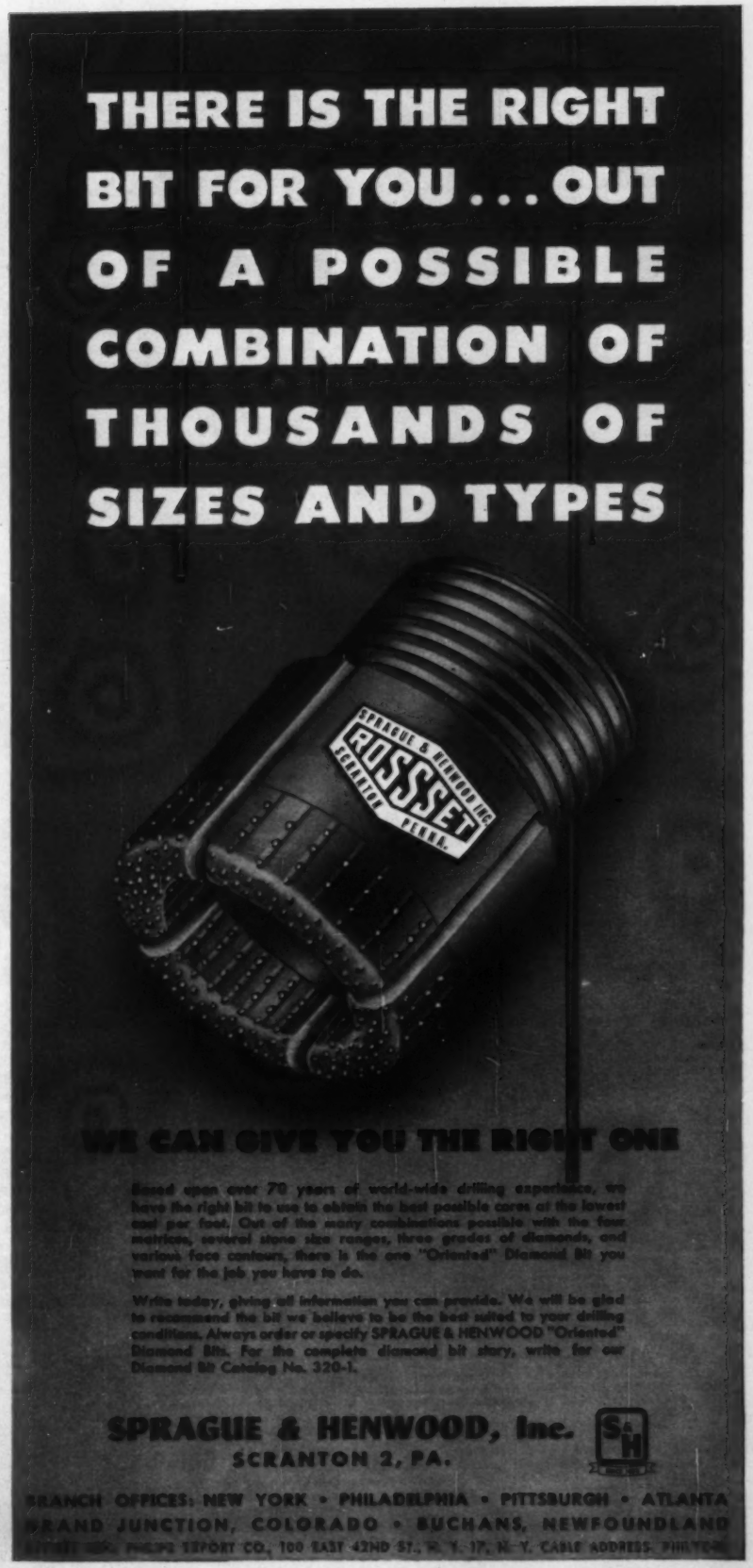
▲ Alaska, **Anchorage**—HOTEL—Western Hotels, Inc., Olympic Hotel, Seattle, Wash., plans by Durham, Anderson & Freed, 1100 Denny Way, Seattle, Wash., 200 unit steel frame hotel. **$2,000,000.** Work to begin in Spring.

▲ Ark., **Little Rock**—OFFICE—Winthrop Rockefeller, Morrilltown, Ark., and Trammell Crow, 425 S. Field St. Dallas, Tex. and R. A. Lile, Pyramid Life Bldg., plans by Harold Berry, 425 S. Field St., Dallas, Tex, 18 story brick, stone, office **$5,000,000** to go ahead in November.

▲ Calif., **Carmel**—HOTEL—Western Hotels Inc., Exec Offices, Olympic Hotel, Seattle, Wash. will not constr. 200 unit De Luxe Resort Hotel (incl. banquet rooms, cocktail lounges, etc.) **$2,000,000.** Project abandoned. CD 7/30

Calif., **Redding** — CHURCH — Pilgrim Congregational Church, c/o Bldg. Comn., P. O. Box 1718, plans by Frank Lloyd Wright, c/o Bldg. Comn., P. O. Box 1718, church, overlooking Eureka Way **$300,000-$500,000.**

Calif., **San Bernardino**—DWELLINGS—Shaw Constr. Co., 9461 Sunset Blvd., Los Angeles, plans by Rognstadt & Sorenson, 3858 E. Colorado St., Pasadena, 80


THERE IS THE RIGHT BIT FOR YOU... OUT OF A POSSIBLE COMBINATION OF THOUSANDS OF SIZES AND TYPES
SPRAGUE & HENWOOD INC.
ROSSET
SCRANTON PENNA.
WE CAN GIVE YOU THE RIGHT ONE
Based upon over 70 years of world-wide drilling experience, we have the right bit to use to obtain the best possible cores at the lowest cost per foot. Out of the many combinations possible with the four matrices, several stone size ranges, three grades of diamonds, and various face contours, there is the one "Oriented" Diamond Bit you want for the job you have to do.
Write today, giving all information you can provide. We will be glad to recommend the bit we believe to be the best suited to your drilling conditions. Always order or specify SPRAGUE & HENWOOD "Oriented" Diamond Bits. For the complete diamond bit story, write for our Diamond Bit Catalog No. 320-I.
SPRAGUE & HENWOOD, Inc.
SCRANTON 2, PA.
S&H
BRANCH OFFICES: NEW YORK • PHILADELPHIA • PITTSBURGH • ATLANTA
GRAND JUNCTION, COLORADO • BUCHANS, NEWFOUNDLAND
EXPORT DEPT. PHILIPS EXPORT CO., 100 EAST 42ND ST., N. Y. 17, N. Y. CABLE ADDRESS: PHILTOOL

frame, stucco dwellings, Golden Ave. Tract 3931. $800,000.

▲ **Calif., San Leandro**—HOSPITAL—Geo. E. Samson, 1735 View Dr., hospital, 135th St. $2,000,000. Constr. 1959.

Calif., Simi—DWELLINGS—Simi Valley Land & Development Co., Santa Susana, plans by William Bray, 962 N. La Cienega Blvd., Los Angeles, 40 dwellings, Tract 1057. $480,000.

Conn., Hartford — APARTMENT — Green Manor Constr. Co., 382 W. Middle Tpk., Manchester, 6 garden-type apartment bldgs., 274-300 Capen St. and 252-260 Vine St. $500,000. Constr. Spring 1959.

Conn., Manchester—TEMPLE, etc.—Temple Beth Sholom, 22 Myrtle St., temple, meeting hall and classrooms, East Middle Tpk. $355,000.

Conn., Milford—HOUSES—Kaye Builders, Inc., 399 Kimberly Ave., New Haven, plans by John F. Lynch, 412 Campbell Ave., West Haven, 44 houses, Woodruff Rd., $440,000.

Conn., South Windsor—HOUSES—Morton Miller, Avery St., 50 houses, "Avery Heights", Kelly Rd., Section 3, $725,000.

▲ **Conn., Trumbull**—HOUSES—Walter Trojanowski, 1101 E. Main St., Bridgeport, 100 houses "Potomac Park". $1,000,000.

▲ **Conn., Trumbull**—HOUSES—Walter Trojanowski, 1101 E. Main St., Bridgeport, 200 houses, "Aztec Acres". $2,000,000.

Idaho, Lewiston—HOSPITAL—St. Joseph's Hospital plans by H. Richardson, Lewiston, 2 or 3 story hospital addn. $600,000. CD 9/30.

Ill., Des Plaines—APARTMENTS—First Federal, Inc., Grandbrook Dr., plans by Kenneth E. Holmer, 72 N. Broadway, 7 apartment bldgs., Northwest Hy. and Mt. Prospect Rd. (Cumberland Village subdivision). $840,000.

Ill., Evanston—APARTMENTS—Owner, c/o Paul Rogers & Assocs., 22 W. Madison St., Chicago, and Hausner & Macsal, 104 S. Michigan Ave., engrs.-archts., 8 story, bsmnt., 49 unit apartment, 1420 Chicago Ave. $600,000.

Ind., Jasper—ST. Joseph Parish, plans by Virgil Miller, 1037 Bayard Park Dr., Evansville, masonry, steel frame Junior High School addns., 10th and Church Sts. $400,000. CD 1/12/49.

Kan., Hoisington—HOSPITAL—Lutheran Hospital, Hoisington, plans by Leonard Brokaw, 1100½ Main St., Great Bend, addn. for out-patient departments, etc. $368,000.

Kan., Wichita—DORMITORY—Wesley Hospital & Nurses Training School, 55 N. Hillside St., Kan. 14-CH-46 H, dormitory. $980,000.

▲ **Mass., Boston**—APARTMENT—Clarendon Development Corp., 14 Charlesgate St., Boston, plans by Samuel Glaser Assoc., 234 Clarendon St., Boston, Mass., apartment house, Commonwealth Ave. at Clarement St. $2,200,000. Constr. 1959.

Mass., Winthrop—APARTMENT—Almont Realty Trust Co., c/o B. C. Gallo, archt., 409 Chelsea St., East Boston, apartment house, incl. 3 bldgs. $350,000. Bids April 1959.

Mass., Worcester—CHEMISTRY ENGINEERING—Worcester Polytechnic Institute, Institute Rd., plans by Clifford Browker, Assoc., 123 North State St., Concord, N. H., chemistry engineering bldg. $400,000. Constr. 1959.

Minn., Austin—HOTEL—Austin Community Hotel, Motel Corp., Austin, plans by Hemmel & Green, Inc., 1932¼ University Ave., St. Paul, 80-unit hotel-motel. $700,000. Constr. Spring.

Minn., Golden Valley (P. O. Minneapolis)—APARTMENT—S. C. Brooks, 2725 France Ave. South, Minneapolis, six 11 unit apartments, southeast corner of Olson Hy. and County Rd. 18. $750,000.

Mo., Dellwood (St. Louis 21 P. O.)—MEDICAL CENTER—North Roads Medical Bldg. Inc., c/o Eric W. Smith, Jr. and Robert Entzereth, archts., 8230 Forsyth Blvd., Clayton 24, Mo., 73x116 ft. precast concrete, concrete blocks, plastic in spray, steel, etc. main, ground level and two upper floors, medical center bldg., 9811 Chambers Rd. $600,000. John P. Nix, 25 S. Bemiston Ave., Clayton, Zone 5, structural engr. Albert Rich Co., 111 S. Meramec Ave., Clayton, Zone 5, mechanical and electric engr. Bids about Dec. 1.

▲ **Mo., Kansas City**—OFFICE—Interstate Securities Co., 215 E. 18th St., Kansas City, Mo., plans by Kivett & Myers & McCallum, 1016 Baltimore, Kansas City, Mo., 4 floors, bsmnt., 60,000 sq. ft. air-conditioned office bldg., 34th St. and Broadway. $1,000,000.

▲ **Mo., Town & Country (St. Louis 24 P. O.)**—HOSPITAL—Missouri Baptist Hospital, 919 N. Taylor Ave., St. Louis, Zone 8, plans by Edward H. Noakes, consult. archt., 1145 19th St. N.W., Wash., D. C., 10 story hospital, Hy. 40 and Ballas Rd. $4,000,000-$12,000,000. CD 12/4, under Mo., Ladue (St. Louis 24 P. O.).

▲ **N. J., Camden**—CLASSROOM AND LABORATORY—Rutgers University, College Ave., New Brunswick, classroom and laboratory bldg., Pennsylvania Ave. Campus, $1,300,000.

▲ **N. J., Jersey City**—SHOPPING CENTER—Philip J. Levin, U. S. Hy. 22, Plainfield, 40,000 sq. ft. shopping center, Garfield Ave. $1,000,000.

▲ **N. J., Princeton**—TAVERN HOTEL, etc.— Princeton Municipal Imprvt, Inc., 27 Palmer Sq. West, constr Nassau Tavern Hotel expansion, Palmer Sq., and outdoor swimming pool, $1,000,000.

▲ **N. Y., New York**—HEADQUARTERS—American Red Cross, New York Chapter, 315 Lexington Ave., plans by Skidmore, Owing & Merrill, 425 Park Ave., 5 story, headquarters bldg., Amsterdam Ave., 66th St., Lincoln Square Development. $5,000,000.

▲ **N. Y., New York**—APARTMENT—Geller & Mitchell, c/o Boak & Raad, archts., 175 Fifth Ave., Zone 10, 20 story apartment, eastside Second Ave. between 47 and 48 Sts. $2,500,000.

▲ **N. Y., Syracuse**—MOTEL—Potter Real Estate Co., Onondaga Hotel, Syracuse, "Randolph House" incl. 408 unit motel, swimming pool near Exit 37, New York State Thruway. $5,000,000.

Okla., Oklahoma City—APARTMENT—Marbro Co., Inc., 3616 Cedar Springs Rd., Dallas, Tex., plans by Harry C. Hoover, 3616 Cedar Springs Rd., Dallas, Tex., 100 apartment units, $550,000.

▲ **Pa., Pittsburgh**—LIBRARY—Carnegie Institute of Technology, Schenley Park, Pittsburgh, Zone 13, plans by Lawrie & Green, 321 N. Front St., Harrisburg, Hunt Library. $2,800,000. Schell, Deeter & Knabe, 3 Gateway Center, Pittsburgh, will advise on aluminum. CD 3/11/57.

Tenn., Nashville—APARTMENT—Schatten-Cypress Co., 7th and Lafayette Sts., plans by Donald F. Steinbaugh Assocs., 3rd National Bank Bldg., apartment $375,000

Tex., Beaumont—SCHOOL—Catholic Church, 1411 Sealy St., Galveston, plans by Goleman & Rolfe, 5100 Travis St., Houston and Steinman & Son, 1st Fed. Bldg., Beaumont, co-educational high school. $900,000. CD 3/17.

Tex., Dallas—APARTMENT—J. Henry Coleman, 3315 W. Jefferson St., 32 apartment units, area of Jefferson-Westmoreland intersections in Oak Cliff. $350,000.

Tex., Dallas—APARTMENT—Sap-Tan Corp., 1509 A-Cochran St., plans by George A. Edwards, 1509 A-Cochran St., consultant, 85 apartment units Jefferson, Westmoreland Intersection area in Oak Cliff. $550,000.

Tex., Fort Worth—STORE—M&S Investment Co., 915 Commerce St., Dallas, plans by Geo. W. Edwards, 1509-A Cochran St., Dallas, store, Miller St. $375,000.

▲ **Tex., Houston**—APARTMENT, etc.—W. L. Cook Jr., Gulf Bldg., plans by Lawrence D. Starnes & Assocs., proj. archts., 3115 Buffalo Dr., twenty 2 story 142 unit apartments, incl. helicopter platform $1,800,000. 3 heated swimming pools $80,000, Grand Blvd. near Hermann Park.

Tex., Houston—CLINIC-HOSPITAL—Rockglen Properties Co., 1513 W. Alabama St., plans by Nyal L. Cline, 1513 W. Alabama St., clinic-hospital Northshore Shopping Center area. $360,000. Karl A. Krause, 2502 Robinhood St., and Rex G. Bullock, 1120 W. 43 St., Houston, Tex., consult. engrs.

▲ **Tex., Houston**—MOTEL, etc.—San Ja Magicland, Earl J. Welch &Assocs., c/o Earl J. Welch, Lamar Hotel, plans by Wylie W. Vale, 517 W. Gray St., 400 unit motel and restaurant $5,000,000. 165 units co-operative apartments Proj. No. 1 $3,000,000. 165 units co-operative apartments Proj. No. 2. $4,000,000. youth pavilion; marineland or aquarium, commercial exhibit area $750,000. summer theatre (10,000 seating cap.) $500,000-$1,000,000. ice palace for year round skating $250,000; 30 acre fresh water lake $1,000,000; outside lighting $75,000; grounds earthwork for area $70,000. water sys. $50,000., sewerage sys. $85,000. playgrounds (swimming pools, fishing ponds, bowling lanes, tennis and athletic courts, miniature golf courses, etc.) $1,000,000, above off State Hy. No. 73.

▲ **Tex., Houston**—PHYSICAL EDUCATION, etc.—Texas Southern University, 3201 Wheeler Ave., plans by Hedrick & Stanley, 5201 Fannin St., physical educational plant $600,000; gymnasium, swimming pool, showers, dressing rooms, athletic courts $350,000; Phase 4, bowling alley, classrooms, combatant rooms, physical education unit $350,000; Phase 1; heated swimming pools, 5 lane 50 meters long; locker and showers; classrooms $350,000.

▲ **Tex., Laredo**—DWELLINGS—Del Rio Builders, 505 S. Main Ave., plans by DeVerne Kittles, 523 W. Hildrebrand Ave., San Antonio, seventy 900 sq. ft. low cost brick veneer dwellings, El Monte and Locust Sts. $630,000.

Tex., Odessa—EXPOSITION BUILDING, etc.—Permian Basin Oil Show Inc., 502 N. Sam Houston, main exposition bldg., $375,000. petroleum museum $350,000. water sys. $45,000, show grounds area paving $75,000.

Tex., Port Arthur—SCHOOL—Catholic Church, Bishop Wendelin J. Nold, 1411 Sealy St., Galveston, plans by Goleman & Rolfe, Calder Ave., Beaumont, high school. $800,000-$1,000,000. CD 3/17.

Tex., San Antonio—OFFICE—Petroleum Center, 900 N.E. Military Dr., 4 story, 44,000 sq. ft. masonry and glass office. $375,000.

▲ **Utah, Roy**—SHOPPING CENTER—Donald H. Shaneding & Assocs., 6505 Wilshire Blvd., Los Angeles, Calif., 12 acre 40,000 sq. ft. shopping center. $1,500,000. Constr. 1959.

▲ **Wis., Milwaukee**—APARTMENT—E. C. Pommerening & Son, 231 W. Wisconsin Ave., apartment house $2,700,000. Will constr. if zoning can be changed.

▲ **Ont., Ottawa**—SHOPPING CENTER—Ottawa Fruit Supply Ltd., 400 Industrial Ave., shopping center, Baseline Rd. and Merrivale Rd. $3,000,000.

INDUSTRIAL BUILDINGS

▲ **Calif., Fresno**—PLANT—Valley Nitrogen Co., Equitable Bldg., Fulton St., fertilizer plant, $9,00,000. Site negotiations underway.

▲ **Colo., Greeley** — PLANT — Greeley Capitol Packing Plant, c/o Denver Office, 5000 Clarkson, 1 story, bsmnt., 80 to 100,000 sq. ft. packing plant. $1,000,000.

▲ **Ill., Chicago**—PLANT—Libby McNeil & Libby, Exchange Ave., corner Packers Ave., plans by A. Epstein & Son, 2011 W. Pershing Rd., Zone 9, 600,000 sq. ft. plant on 50 acres at Ashland Ave. and 115 St. $10,000,000.

Ind., Bluffton—FACTORY, etc.—Franklin Electric Co., Spring St., plans by Alvis O'Keefe, Plymouth, 150x200 ft. factory addn., 40x200 ft. office addn. $300,000. Work to start early Spring of 1959.

Ind., East Chicago—PLANT, etc.—Calumet Iron & Supply Co., 175 W. Chicago Ave., plans by Engineering Service Co., 811 Chicago Ave., Hammond, plant addn., office and loading dock. $150,000.

▲ **Ind., Schererville**—PLANT—Graver Tank & Mfg. Co., 4809 Tod Ave., East Chicago, plant, U. S. 41 and Main St. $1,000,000.

▲ **O., Campbell**—PLANT—Youngstown Sheet & Tube Co., 7655 Market St., Youngstown, 110x716 ft. slab yard bldg.; 40x716 ft. roll and bearing shop, 84x630 ft. mill addn.; 54x420 ft. motor room addn.; 55x420 ft. slab yard extens.; 3 slab heating furnaces for hot strip mill, power units and equipment, altering hot strip mill (two year program). $50,000,000. CD 8/8/49.

Tex., Houston—SHOP—Brown Oil Tools, Inc., 8490 Katy Rd., 40x240 ft., steel frame, concrete fdn., floor, etc. shop. $100,000.

▲ **Tex., Pecos**—PLANT—West Texas Utilities Co., 1062 N. 3 St., Abilene, steam plant near Rio Pecos. $3,250,000.

▲ **Tex., Perryton**—PLANT—Skelly Oil Co., Skelly Bldg., Box 1650, Tulsa, Okla., gasoline plant southwest of here. $2,000,000.

▲ **Tex., Perryton**—REFINERY—Texas Co., 720 San Jacinto, gasoline refinery. $2,500,000.

Wash., Everett—BUS TERMINAL—Greyhound Lines, Market and Fremont Sts., bus terminal, $150,000.

▲ **Wash., Kennewick**—PHOSPHATE FERTILIZER PLANT—Bunker Hill Co., 66 Market St., San Francisco, Calif., phosphate fertilizer plant, near here. $10,000,000.

Wash., Mountlake Terrace—PLANT—Marine Fiber-Glass & Plastics, Inc., 2901 Blakely St., Seattle, plans by T. F. Bellamy, 315 Marion St., Seattle, Zone 4, 40,000 sq. ft. plastics mfg. plant, $150,000. CD 9/30.

Wash., Seattle—PARKING GARAGE—Sixth Ave. Imprvt. Co., 1413 6 Ave., Zone 1, plans by Mandeville & Berge, Vance Bldg., Zone 1, 7 story, 90x120 ft. parking garage. $150,000.

Wis., Berlin—FACTORY—Midwestern Sports Togs & Berlin Glove Co., plans by S. C. Russell, 221 6 St., Racine, 1 story, bsmnt., 88x140 ft. concrete, brick, blocks factory. $125,000.

Ont., Newmarket—PLANT—Ray Plastics Ltd., 3284 Yonge St., Toronto, plans by John B. Parkin Assocs., 1500 Don Mills Rd., Toronto, 1 story, 30,000 sq. ft. structural steel frame, brick walls plant. $200,000.

▲ **Que., Cap de la Madeleine**—PLANT—Reynolds Aluminum Co. of Canada Ltd., St. Laurent St., plant extens., imprvs. $1,000,000.

UNCLASSIFIED

Fla., Hialeah—SWIMMING POOL, etc.—City, City Hall, 75x165 ft. swimming pool and dressing rooms, near Municipal Auditorium. $350,000.

▲ **Ga., Atlanta**—TOLL OFFICE—Southern Bell Telephone & Telegraph, 51 Ivy St. N.E., toll office addn., 51 Ivy St. N.E. $3,500,000.

Ga., Augusta—WHARF—City, City Hall, wharf and shed adjacent to city docks on Savannah River. $250,000 Patchen Leopold & Evans, 525 Telfair St., consult. engrs.

Ill., Chicago—REALIGN SUBWAY TRACKS—Chicago Transit Auth., Merchandise Mart, Zone 54, realign tracks at Wilson Ave. transit station, increasing from present 3 tracks to 4 tracks, $350,000; Uptown transit station addn., incl. platform with canopy to connect with existing station, $150,000, Bids about December; tracks, power lines, signal sys. for transit system along Congress St. Hy., 4½ mi. west of Central Ave., incl. pole lines, railway type signals relay cases, welded rails, $1,200,000, Bids in Spring 1959; 4 transfer stations for mass transit line, Congress St. Hy. west of Central Ave., incl. rein.-con. platform, aluminum frame and canopy, $1,500,000, Bids about March 1959. CD 6/11/57.

Ind., Portland—SWIMMING POOL—City Park & Recreation Bd., Municipal Bldg., swimming pool. $139,500.

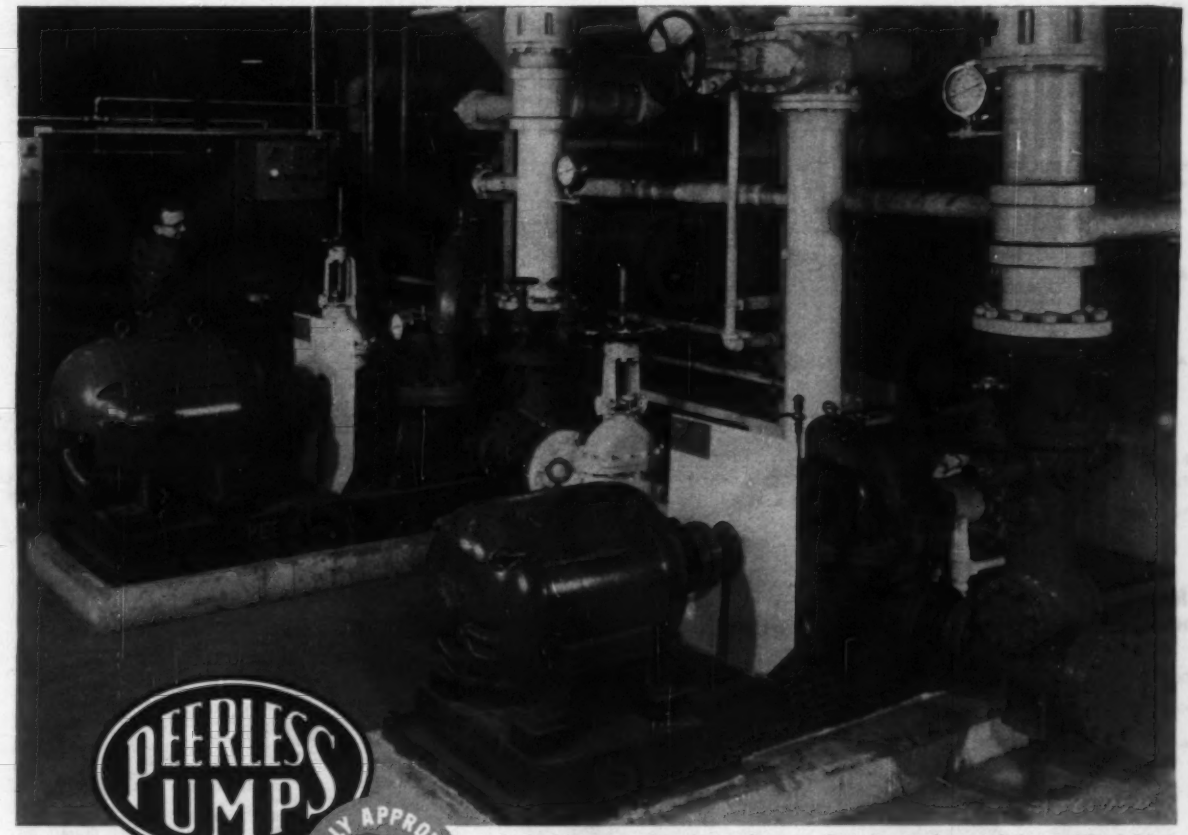
Iowa, Winterset—SWIMMING POOL, etc.—City, City Hall, swim pool, bathhouse, etc. $130,000. Henningson, Durham & Richardson, Inc., 2962 Harney St., Omaha, Neb., consult. engr.

▲ **Missouri**—GAS PIPELINE—Mississippi River Transmission Corp., 407 N. 8th St., St. Louis, Zone 1, 115 mi. natural gas pipe line from pumping station near Oran, Mo. to St. Louis County, Mo. to connect with Mississippi River Fuel Corp. sys. $8,000,000.

▲ **Tex., Dallas**—SUB-STATION—Dallas Power & Light Co., Dallas Power & Light Bldg., electric sub-station, Jim Miller and Scyene Rds. $1,000,000.

Wash., Tacoma—GRAIN ELEVATOR—Port of Tacoma, Portacoma Rd., 2,500,000 bu. 180 x 500 ft. grain elevator addn. $200,000. CD 11/9/56.

▲ **Wis., Milwaukee** — ELECTRICITY GENERATING PLANT—City, City Hall, electricity generating plant that will use heat from incinerator plant. $2,300,000. E. A. Schmidt, city engr.



PEERLESS FULLY APPROVED
FIRE PUMPS...

FULLY APPROVED
UL
FM

Prudential Insurance Co. takes no chances on fire in its recently erected Chicago Office Building. Peerless pumps give immediate protection against fire automatically, without human attention.

HOW TO DEAL WITH A FIRE BEFORE IT STARTS!

To insure adequate protection against the hazards of fire, a qualified independent fire protection system is a must. And to be doubly sure of the best system, the vital heart of the unit, the pump, should be the best money can buy. That's where Peerless *fully-approved* fire pumps excell.

Throughout a third of a century, Peerless fire pumps have attained an enviable and pre-eminent reputation in protecting all types of buildings, plants and warehouses. Put this know-how to work on your protection problem. See how Peerless' combination of top quality fire pump equipment, exacting engineering application and nationwide service can serve you best. In many instances, the savings effected thru more favorable insurance premiums can pay for the installation. For fire pumps at their very best look to the leader, look to Peerless. Write for bulletin B-1500 today.

Available with steam turbine, engine or electric motor drives, Peerless fire pumps are available for high pressure sprinkler systems, or foam smothering systems in every kind of commercial, or industrial installation.

fmc
FOOD MACHINERY AND CHEMICAL CORPORATION

Putting Ideas to Work

Peerless Pump Division

Plants:
Los Angeles 31, Calif. a.. dianapolis 8, Ind.

PEERLESS PUMP DIVISION
FOOD MACHINERY & CHEMICAL CORPORATION
2005 NORTHWESTERN AVENUE, INDIANAPOLIS, INDIANA

Gentlemen: Please send me immediately a copy of your Bulletin B-1500.

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

Bids—Low Bids—Contracts—Second Section

BUILDINGS—SLC

▲ **R. I., Portsmouth**—CHURCH, etc.—Portsmouth Priory & School, Order of St, Benedict, Corey Lane, soon lets contract church and monastery, $1,000,000. Petro Belluschi & Anderson, Bechwith & Haible, 11 Beacon St., Boston, Mass., archts. CD 10/21.

HEAVY CONSTRUCTION—LB & CA

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

M. A. Gammino Constr. Co., 728 Valley St., Providence, R. I., CA **$572,698** est. $735,904, hy. and bridge constr. Interstate Rte. 95E, Seekonk. Bids Oct. 15. CD 10/22, under LB.

▲ **Aberthaw Constr. Co.,** 60 State St., Boston, Mass., CA Est. over **$1,000,000,** amusement park, WAKEFIELD, MASS. Owner, c/o Cabot, Cabot & Forbes, 60 State St., Boston, Mass. C. V. Wood, Jr., c/o Marco Engineering Co., 1275 North Sweetzer St., Los Angeles, Calif., engr.

▲† **Hartwell Co., Inc.,** 33 Sutton Ave., East Providence, R. I. LB **$1,519,500,** est. $1,714,000 fleet berthing piers and steam facilities, U. S. Naval Base, NBy 11078, Spec. 11078/56, NEWPORT, R. I. First Naval Dist., 495 Summer St., Boston, Mass. Bids Nov. 7. CD 10/28.

BUILDINGS—LB & CA

Floyd Hunter, Guilford, Conn., Owner Builds. **$740,000** 74 HOUSES, Lovers' Lane, GUILFORD, CONN.

The Marjoe Corp., 20 Brook St., Hartford, Conn., Owner Builds. **$780,000,** 40 HOUSES, "Rockledge Estates", West Point Terrace, WEST HARTFORD, CONN. CD 10/23.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES

December 2 New Jersey December 11 New York

STREETS AND ROADS

November 25 Maryland December 2 New Jersey
December 11 New York

▲ **New York**—BA 12/9—Power Authority of State of New York, The Coliseum Tower, 10 Columbus Circle, New York Zone 19, furnishing del. approx. 2,400 tons structural steel draft tube gates, stoplogs and intake gates for Lewiston Power Plant, Niagara Co., Spec. No. PA-N-23017, Niagara Contr. No. NP27. Plans deposit $10. Uhl, Hall & Rich, 230 Congress St., Boston 10, Mass., engrs. CD 8/15.

▲ **NEW YORK**—BA 12/9—Triborough Bridge & Tunnel Auth., Admin. Bldg., Randall's Island, New York, Zone 35, Throgs Neck Bridge Contr. No. TN-9, electrical work, suspended structure and approaches. Plans deposit $25. CD 1/20/55.

▲ **NEW YORK**—BA 12/10—Triborough Bridge & Tunnel Auth., Admin. Bldg., Randall's Island, New York, Zone 35, Throgs Neck Bridge, Contr. No. TN-11, Queens Interchange. Plans deposit $45. CD 1/20/55.

▲ **New York and New Jersey**—BA 12/16—Port of New York Auth., 111 Eighth Ave., New York, Zone 11, constr. Section No. 2 of the approach roadway sys. in New York for lower level expansion of George Washington Bridge, Contr. GWB-190.004. Plans deposit $50. CD 8/15.

BUILDINGS—BA

▲ **Pa., West Chester**—DORMITORIES, etc.—BA 12/10—General State Auth., 18th and Herr Sts., Harrisburg, mens dormitory and womens dormitory and music bldg. for West Chester State Teacher's College. $2,500,000. Plans deposit $50. H. D. Daget & Sons, 1329 Race St., Phila., Zone 7, archts. A. F. Jones, c/o owner, ch. engr. CD 12/6/56.

HEAVY CONSTRUCTION—LB & CA

▲ **Westinghouse Air Brake Co.,** 350 Fifth Ave., New York 1, N. Y., CA **$3,223,769,** furnishing, installing block signaling and interlocking equip. for rehabilitation of Lexington Ave. Line, IRT Division, Wall St. to Astor Pl., Contr. No. S-101, Manhattan Boro, NEW YORK, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Oct. 10. CD 10/16, under LB.

▲† **Fayco Electric Co., Inc.,** 4414 Pennwood Rd., Brentwood, Md. LB **$1,989,500** (19 bidders) modernization of facilities, electrical distr. sys., Phase I and II, Watervliet Arsenal, ENG-30-075-59-9, WATERVLIET, N. Y. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Nov. 12. CD 11/3.

▲ **NEW JERSEY**—Comn. State Hy. Dpt., 1035 Parkway Ave., Trenton, Bids opened 11/7,

N. J.—Thomas Nicol Co., Inc., Hamilton Rd., Farmingdale, N. J., LB **$929,053,** (7 bidders), wid'n. resurf. 4.72 mi. U. S. Rte. 30, Sect. 1, from Taunton Rd. to Wellington Ave. in Twp. of Waterford and boroughs of Berlin, Clementon, Lindenwold, Laurel Springs and Stratford, Camden Co.;

N. J.—Franklin Contg. Co., U. S. Hy. No. 46, Little Falls, N. J., LB **$670,198,** (9 bidders), dualization 1.706 mi. U. S. Rte. 202, Sect. 2, from Beechwood Drive to Huyler Rd., Fed. Project DF-109(11), Somerset Co.;

N. J.—Manzo Constr. Co., Inc., State Hy. No. 34, LB **$746,545,** (10 bidders), grading, drainage, paving 2.5 mi. Rte. 18, Section 3, from Pine St. to 800 ft. east of Spring Valley Rd., Madison Twp., Fed. Project DF-112(14), Middlesex Co. CD 10/24.

▲ **PENNSYLVANIA**—Pa. Hys. Dpt., 506 North Office Bldg., Harrisburg,

Pa.—R. J. Nichols Co., Box 229, Kittanning, Pa. CA **$734,497,** 7,461 ft. c. conc. road variable in width; 1 alt. superstructure bridge, T.R. 66 Manor and Rayburn Twps., Armstrong Co.;

Pa.—Marsolino Constr. Co., 309 Fayette National Bank Bldg., Uniontown, Pa. CA **$813,080,** 15,114 ft. divided hy.; widening existing road with crushed aggreg. base and bit. surf. 22 ft. wide each side divisor, T.R. U.S. 40, N. Union and S. Union Twps., Fayette Co. Bids Oct. 17. CD 10/22, under LB.

Princemont Constr. Corp., 322 N. Stonestreet Ave., Rockville, Md., LB **$596,601** (6 bidders) paving, widening Bladensburg, Rd. N.E. between 17 St. and New York Ave., Fed. Aid Proj. DF-65(3), WASH., D. C. D. C. Govt., Dpt. Hys., 499 Pa. Ave. N.W., Wash., D. C Bids Nov 6 CD 10/23

BUILDINGS—LB & CA

▲ **Diesel Constr. Co.,** 100 Church St., New York, N. Y. CA Est. **$1,500,000,** 5 story MOTEL, 10th Ave., West 49 and 50 Sts., NEW YORK, N. Y. Skyline Motel, c/o Leo Stillman, archt., 332 E. 149 St., New York, N. Y.

▲ **Planet Constr. Corp.,** 11 W. 42 St., New York 36, N. Y. LB **$1,237,500** (16 bidders) general constr., plumbing, heating and ventilating work, electrical work and lighting fixtures 8th Ave. GARAGE, 8th Ave., W. 53 to 54 Sts., Manhattan Boro, NEW YORK, N. Y. Dpt. P. Wks., Room 2200, Municipal Bldg., New York 7, N. Y. Bids Nov. 15. CD 10/31.

▲ **Mastar Constructors, Inc., (Arthur Fritog),** 242 Cherry Lane, Paterson, N. J., Owner Builds. **$3,000,000,** 110 HOUSES and utilities in development at Mayfair Ave., MAHWAH, N. J.

Edmund H. Cheval Co., 592 Paramus Rd., Paramus, N. J., CA **$593,600,** general contract Eastside ELEMENTARY SCHOOL, 4 and Mercer Sts., PASSAIC, N. J. City, City Hall, Passaic, N. J. Bids Sept. 15. CD 8/28.

▲ **Ritter Bros.** 1511 N. Cameron St., Harrisburg, Pa. CA **$1,000,000.** DISCOUNT SHOPPING CENTER, 1st unit of Camp Hill Shopping Center, CAMP HILL, PA. Korvette, Inc., Trindle Rd. and Chestnut St., Camp Hill, Pa. George Neff, 520 Locust St., Phila., Pa., and H. S. Eden, 23 S. Front St., Harrisburg, Pa., archts. CD 6/4, under Kravitz Developing Co., as owner.

Orndorff Constr. Co., 2214 Market St., Camp Hill, Pa. LB **$789,051,** general constr. HIGH SCHOOL addn., New Kingston, MECHANICSBURG, PA. Cumberland Valley Jt. School Dist., Mechanicsburg, R.D. 1, Pa. Bids Nov. 5. CD 10/29.

Hill & Ivins, 150 N. 2nd St., Chambersburg, Pa. CA **$646,225,** Secondary HIGH SCHOOL BLDG. for S. Fulton Jt. School Bd., WARFORDSBURG, PA. S. Fulton Co. School Auth., Wafordsburg, Pa. Bids Sept. 16. CD 9/23, under LB.

▲ **Opha Mays,** 7403 Aspen Ave., Takoma Park, Md., LB **$1,326,736,** (8 bidders), JUNIOR HIGH SCHOOL, District Heights, MARLBORO, MD. Prince George's County Bd. Educ., Marlboro, Md. Paul H. Kea, 5109 Baltimore Ave., Hyattsville, Md., archt. CD 8/1.

E. A. Baker Co., 6580 Sligo Mill Rd., Takoma Park, Md., CA **$588,000.** Base Bid, Richard Montgomery HIGH SCHOOL addn., ROCKVILLE, MD. Montgomery Co. Bd. Educ., Rockville, Md. Bids Oct. 23, awarded Nov. 10. CD 10/29, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS

December 5 Kentucky

BUILDINGS—BA

Fla., Tampa—PLANT—BA 12/4—Borden's Dairy, P. O. Box 7098, dairy processing plant. $750,000. Plans deposit $95. Pullara, Bowan & Watson, 2910 Grand Central Ave., archts. CD 10/13.

▲† **Tenn., Oak Ridge**—CENTRAL RESEARCH LABORATORY—BA About 1/15—Atomic Energy Comn., P. O. Box E, Oak Ridge, two 2 story, 287,000 sq. ft. Central Research Laboratory Addns. (Bldg. 4500). $9,600,000. A. M. Kinney, Inc., 2905 Vernon Pl., Cincinnati, O., engr. CD 9/12.

HEAVY CONSTRUCTION—LB & CA

▲ **WEST VIRGINIA**—State Road Comn., Charleston, Zone 5,

V. N. Green & Co., Concrete Constr. Co. & Central Asphalt Co., 1640 4 Ave., Charleston 2, W. Va. CA **$2,442,006,** grading, draining, structures 2.366 mi. Interstate Rte. 77, Proj. I-77-3 (10) 113, Kanawha Co. Bids Oct. 28, awarded Nov. 7. CD 10/31, under LB.

LOUISIANA—Dpt. Hys., Hy. Office Bldg., Baton Rouge,

G. E. Steed, Box 698, Springhill, La. CA **$555,080,** aggreg. type base course, bit. mixtures 5.599 mi. Jena-Whitehall Hy., Rte. LA-US 84, SP No. 22-05-23 FAP No. F-153 (3), LaSalle Parish. Bids Sept. 24. CD 10/1, under LB.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort, Bids opened 11/7,

Ky.—R. R. Dawson Bridge Co., Bloomfield, Ky. LB **$1,170,885** (5 bidders), b. conc. Class I surf. 4.970 mi. Campbellsville-Columbia Rd. from near Burdick extending southerly to point 0.6 mi. north of Adair County line, F 534 (2) SP 109-128, Taylor Co.;

Ky.—T. C. Young Constr. Co., Williamsburg, Ky. LB **$92,465** (3 bidders), traffic bound surf. 1.739 mi. Barbourville-Hyden (Ky. 718) Rd. from 0.25 mi. southwset of Erose extending northeasterly to near jct. of Goosey Fork Creek and Pigeon Fork Creek. S 310 (2), SP 61-110, Knox Co.;

Ky.—R. E. Gaddie, Inc., P. O. Box 343, Bowling Green, Ky. LB **$84,826** (2 bidders), b. conc. surf. Class I, 2.537 mi. Kendall Access Rd. from US 31-W, 1.6 mi. north of north corporate limit of Franklin and extending southeasterly to Ky. 1171, distance 1.531 mi. SP 107-745; traffic bound surf. 1.006 mi. Potter-Brumfield Foundry Access Rd. from Ky. 100 near east corporate limit of Franklin and extending north and west, SP 107-845, Simpson Co. CD 10/22.

KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort,

Lovell & Hart, Inc., P. O. Box 1528, Lexington, Ky. CA **$745,613,** high type surf. 1.799 mi. Stanford-Somerset (Stanford-By-Pass) Rd. US 27, F FG 525 (7), Lincoln Co. Bids Oct. 31. CD 11/6, under LB.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,

Wood & Bush Co., 410 Ann St., Frankfort, Ky. CA **$1,315,160,** high type surf. 2.401 mi. Morehead-Olive Hill-Grayson Rd. from Ky. 174 near S.W.C.L. of Olive Hill, F-FG 13 (8), Carter Co. Bids Oct. 17. CD 10/22, under LB.

KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort, Bids opened 11/7,

Struck Constr. Co., 147 N. Clay, Louisville, Ky. LB **$944,771** (9 bidders), six-lane bridge to carry North-South Expressway across intersection Kentucky and Brook Streets, 0.067 mi. Proj. I 65-6 (8) 134, SP 56-798, Jefferson Co. CD 10/15.

BUILDINGS—LB & CA

Godley Bros. Realty & Constr. Co., Hy. 16, Charlotte, N. C. CA **$500,000** MANUFACTURING PLANT, CHARLOTTE, N. C. Stately Lady Nitewear Mfg. Co., 135 E. 12 St., Charlotte, N. C.

▲ **T. A. Loving & Co.,** Hy. 1-A North, Goldsboro, N. C. CA **$1,133,900** Y.M.C.A. Bldg., RALEIGH, N. C. Young Mens Christian Assn., Wyatt Taylor, dir., 7 E. Edenton St., Raleigh, N. C. Bids Oct. 15. CD 10/24, under LB.

Bd. Comrs. State Institutions, Tallahassee, Fla., rejected bids Sept. 25, WARD BLDG., Florida State Hospital, CHATTAHOOCHEE, FLA. LB **$717,550.** CD 10/1, under LB.

▲ **F. R. Hoar & Son.,** 2808 19 Place S., Birmingham, Ala., CA **$1,500,000,** 150 room MOTOR INN, pool, SHOPS, etc., 920 S. 20 St., BIRMINGHAM, ALA. Dinkler Hotels Co., 98 Forsyth N. W., Atlanta, Ga. Warren, Knight & Davis, Protective Life Bldg., Birmingham, Ala., archts.

▲ **Station Constr. Co.,** 2518 Drexel St., Houston, Tex. CA Est. **$750,000,** TERMINAL, Norco and Loutre Jct., Norco, NEW ORLEANS, LA. Shell Oil Co., Shell Bldg., Houston, Tex. Grand total est. $4,700,000. CD 11/29/51;

Delta Engineering Corp., 2121 San Felipe Rd., Houston, Tex. CA Est. **$1,200,000,** pump stations, Main Pass-Southwest Pass-Ostrica and Pilottown, New Orleans Area (New Orleans, La.);

Houston Contg. Co., 2707 Ferndale St., Houston, Tex. CA Est. **$2,750,000** 65 mi. 20-in. crude line, part of Delta Pipeline in Southern Louisiana near Norco (New Orleans, La.). CD 11/29/51.

Sullivan & Cozzart, 822 W. Kentucky St., Louisville, Ky. CA Est. **$750,000,** 1 story, 250,000 sq. ft. BOWLING BLDG., incl. 24 lanes, Bardstown Rd. and Benchel Bank Rd., BENCHEL, KY. Benchel Bowling Lanes, Inc., Benchel, Ky. Walter Wagner & Joseph Potts, Fincastle Bldg., Louisville 2, Ky., archts.

V. L. Nicholson & Co., 611 S. Central, Knoxville, Tenn. CA **$876,453.** HOME for RETIRED, MARYVILLE, TENN. Methodist Church, c/o Barber & McMurray, archts., 2505 Kingston Pike SW, Knoxville, Tenn. Frank McNutt, Maryville, Tenn., engr. Awarded Nov. 8.

Martindale Bros., Murfreesboro, Tenn. LB **$628,880.** HIGH SCHOOL, Smyrna, MURFREESBORO, TENN. Rutherford Co. Bd. Educ., Murfreesboro, Tenn.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES

November 25 Ohio

STREETS AND ROADS

November 25 Ohio

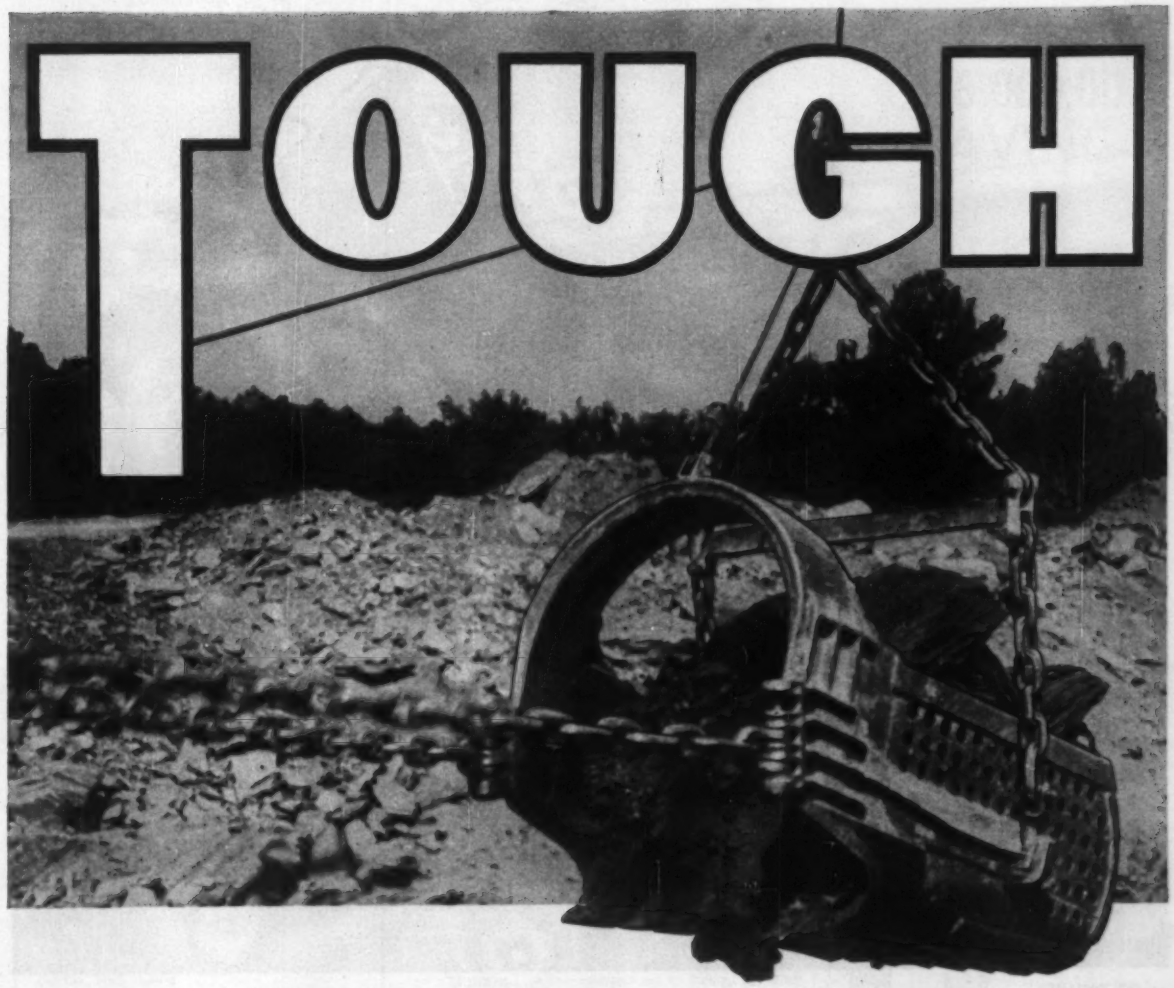
▲ **Ill., Chicago**—EXPOSITION CENTER—BA 12/12—Metropolitan Fair & Exposition Authority, 208 S. LaSalle St., Exposition Hall, Lakefront. $20,000,000. Extended date. CD 10/16.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15, rejected bids Oct. 28, Proj. 560, 5.948 mi. and structures, section of North Freeway between Maynard and

(Continued on Page 99)

TOUGH



...and built to prove it!

Hendrix Lightweight DRAGLINE BUCKETS

The rugged construction of Hendrix Dragline Buckets in all types makes for trouble-free, consistent performance. No matter what the working conditions, Hendrix Buckets can "take it" and come back for more!

"A Type for Every Digging Purpose"...
¼ to 40 Cubic Yards-Perforated or Solid

HENDRIX MANUFACTURING COMPANY, Inc.

MANSFIELD, LOUISIANA

What happened when our backhoe punctured the underground gasoline tank

(Based on Company File #356LP2226)

It seemed a simple enough job installing a 4,000-gallon gasoline tank at a local service station. But during the digging our backhoe knocked two holes in an existing tank.

After pumping the gas out and plugging the holes we notified our Hartford Agent that we had a Liability insurance loss on our hands. We thought the tank would have to be replaced.

Our agent called for a Hartford engineer to look over the situation. When the engineer arrived, we turned the problem over to him. Through previous experience, he was well qualified to handle conditions as unusual as this.

He pointed out that the damage could be repaired by welding the tank, but that protective measures would be needed to guard against an explosion of gasoline fumes. To accomplish this he suggested that water be run into the tank to the level of the lower hole, and the remaining space filled with carbon dioxide. This procedure made it pretty much a routine welding job, and we completed the repairs safely.

Through the engineer's help, we saved a couple days' time, and the claim against us was held to minimum cost – an important factor in keeping our insurance rate down.

* * *

Here is an example of the advantages of being insured in the Hartford. When unusual situations arise, the Hartford has the facilities and the men to meet them . . . the desire and the ability to give policyholders fast, competent help.

The Hartford maintains more than 200 Claim Offices and 64 Engineering Department Offices strategically located from coast to coast. Trained personnel are ready to go into action at a moment's notice. To make sure you get the Hartford extras on your insurance and bond needs, call your Hartford Group Agent or your insurance broker.

Year in and year out you'll do well with the

HARTFORD
Fire Insurance Company
GROUP

Hartford Fire Insurance Company
Hartford Accident and Indemnity Company
Hartford Live Stock Insurance Company
Citizens Insurance Company of New Jersey, *Hartford 15, Connecticut*
New York Underwriters Insurance Company, *New York 38, New York*
Northwestern Fire and Marine Insurance Company
Twin City Fire Insurance Company, *Minneapolis 2, Minnesota*

(Continued from page 96)

Strimple Aves. SR 1-25.33 ACI 1105(14) City of Columbus, Franklin Co. LB $7,344,445. CD 11/6, under LB.

▲ **Wander & Mason,** 1028 Proprietors Rd., Worthington, O., CA Est. $2,000,000, 2,600 seat grandstand 12 concrete block barns, clubhouse and ⅝ mi. track, COLUMBUS, O. Columbus Trotting Assn., 2270 S. High St., Columbus, O. Kellam & Foley, 1621 W. First Ave., Columbus, O., archts.

▲ **INDIANA**—State Hy. Comn., John Peters, chn., State House Annex, Indianapolis, Zone 4,

The hunt Paving Co., P. O. Box 41126, Indianapolis, Ind., CA $1,518,962, est. $1,540,983, rein.-con. pavement, bit. surf. 4.052 mi. US 52, SR 334, Contr. R-4459, Boone Co. Bids June 25. CD 6/11.

▲ **INDIANA**—State Hy. Comn., John Peters, chn., State House Annex, Indianapolis, Zone 4,

Ind.—**Gast Constr. Co.,** P. O. Box 249, Warsaw, Ind., CA $1,268,332, est. $1,481,116, concrete base wid'n. and bit. resurf. 8.256 mi. US 40, Contr. 4568, Marion and Hancock Counties, Bids Sept. 30;

Ind.—**Rieth-Riley Constr. Co.,** West Madison St., Goshen, Ind., CA $605,038, est. $870,129, concrete base wid'n. and resurf. 11.477 mi. US 20, Contr. RS-4577, Laporte Co.;

Ind.—**Meshberger Bros., Inc.,** P. O. Box 38, Linn Grove, Ind., CA $250,009, est. $349,984, concrete base wid'n., bit. resurf. 10.177 mi. SR 5, Contr. RS-4584, Huntington Co. Grand total $2,123,379. CD 10/7, under LB.

INDIANA—State Hy. Comn., John Peters, chn., State House Annex, Indianapolis, Zone 4,

Contracting & Materials Co., 1235 Dodge Ave., Evanston, Ill., CA $865,079, est. $893,851, c. conc. 4.71 mi. SR 2, Contr. R-4508, Porter and Laporte Counties. Bids Aug. 26. CD 9/2, under LB.

INDIANA—State Hy. Comn., John Peters, chn., State House Annex, Indianapolis, Zone 4,

Dyer Constr. Co., Dyer, Ind., CA $585,463, est. $750-966, continuous rein.-con. slab bridge over Tri-State Hy. (SR 420) on Harrison St. in Gary, Contr. 4389, Lake Co. Bids Apr. 29. CD 5/8, under LB.

ILLINOIS—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldgs., Springfield,

Gem Contg. & Paving Co., Inc., Quincy, Ill., CA $613,-373, resurf. 14.89 mi. FA Rt. 166 between Raymond and Nokomis, Montgomery Co. CD 11/5, under LB.

▲ **WISCONSIN**—State Hy. Comn., State Office Bldg., Madison,

Wis.—**Hammersley Constr. Co., Inc.,** Rte. 2, Madison 5, Wis., CA $252,353, grade, subbase and structure B-13-476, 8.77 mi. Verona-USH 14 Road, County Trunk Hy. M, Contr. 1, Proj. S-0257(3), Dane Co. Bids Nov. 4;

Wis.—**F. F. Mengel Co.,** Box 466, Wisconsin Rapids, Wis., CA $1,073,241, concrete paving 6.443 mi. Illinois State Line-Milwaukee County Line (S.T.H. 50-S.T.H. 11 Section) Road, IH 94, Contr. 1, Proj. I-94-6(15)334, Kenosha and Racine Counties;

Wis.—**Woodrich Constr. Co.,** 201 18 Ave. South, Hopkins, Minn., CA $929,002, concrete pavement 6.463 mi. Hudson-Eau Claire (Roberts-Hammond Section) Road, IH 94, Contr. 1, Proj. I-94-1(30)9, St. Croix Co. CD 11/7, under LB.

▲ **MICHIGAN**—State Hy. Dpt., Stevens T. Mason Bldg., Lansing, Bids opened 11/5,

Mich.—**L. A. Davidson,** 213 E. St. Joseph St., Lansing, Mich. LB $3,842,948. 6.8 mi. section dual roadways and structures on Detroit-Chicago Expressway (U. S. 12, relocation) from Kalamazoo-Calhoun Co. line west to Main St. south of Battle Creek, incl. structures, Renton and Helmer Rds., Capitol Ave. (present M 78) Riverside Dr. and new M 78 relocation west of Main St., Kalamazoo and Calhoun Counties.

Mich.—**Lewis & Frisinger Constr. Co.,** 2000 S. Industrial Hy., Ann Arbor, Mich., LB $579,271, grading, drainage and bit. surf. 8.2 mi. M 72 from Fairview east to Alcona Co. line, Oscoda Co.

Mich.—**William Velting & Sons,** 2021 Newark SE, Grand Rapids, Mich. LB $226,743, grading, drainage, aggreg. base course and non-skid surf. 3.5 mi., M 79 from Berryville Rd. east to Nashville city limits, Barry Co. CD 10/23.

BUILDINGS—LB & CA

▲ **Frank Messer & Son, Inc.,** 4612 Paddock St., Cincinnati, O., CA Est. $1,000,000, 4 story BANK-OFFICE BLDG, Victory Pkwy. and Madison Rd., CINCINNATI, O. Central Trust Co., 4th St., Cincinnati, O. Awarded Nov. 5. CD 6/3.

Penker Constr. Co., Summer St., Cincinnati, O., CA $661,000 (7 bidders) OFFICE BLDG., Victory Parkway, CINCINNATI, O. Inter-Ocean Insurance Co., American Bldg., Cincinnati, O. Awarded Nov. 11. CD 10/30.

Klusner Park Homes, M. M. Levitt, pres., Marshall Bldgs., Cleveland 13, O. Own Forces. $500,000, GARDEN APARTMENT DEVELOPMENT, Critchfield Ave., CLEVELAND, O. Marvin Rukin, 13947 Cedar Rd., Cleveland 18, O., archt.

▲ **F. X. Minnigan Co.,** 14 Bates St., Dayton, O., CA $987,138 general contract FAMILY COURT CENTER, incl. 66 bed juvenile detention home in Second and Perry Sts. area, DAYTON, O. Comrs. Montgomery Co., Court House, Dayton, O. Awarded Oct. 30. CD 10/13, under LB.

Frank Hill Smith, Inc., 124 E. Third St., Dayton, O. Owner Builds $600,000 SUPERMARKET and SAVINGS BANK, Salem Ave., north of Hillcrest Ave., DAYTON, O.

A. Bentley & Sons, 201 Belmont Ave., Toledo, O. CA Est. $650,000 (6 bidders) 1 story, 45,000 sq. ft. SCHOOL addn. MAUMEE, O. Trustees, Maumee Valley Country Day School, Reynolds Rd., Maumee, O. Awarded Oct. 22. CD 2/10.

▲ **Austin Co.,** 510 N. Dearborn St., Chicago, Ill., CA $1,000,000, design and construct FACTORY, Hitchcock Rd. and Hy. 20, MICHIGAN CITY, IND. Clark Equipment Co., 324 E. Dewey Ave., Buchanan, Mich.

Johnson & Jacobson, Inc., 213 North 7 St., DeKalb, Ill., CA $647,750 1 story, 25,000 sq. ft. brick Sandwich Community HOSPITAL, SANDWICH, ILL. Horatio Woodward Memorial Hospital, Sandwich, Ill. Bids Oct. 21. CD 9/24.

J. Cullen Constr. Co., 550 Parker Dr., Janesville, Wis., CA Est. $600,000, WAREHOUSE, BELOIT, WIS., Wisconsin Power & Light Co., 122 W. Washington St., Madison, Wis. Weiler & Strang & Assocs., 810 University Bay Dr., Madison, Wis., archts.-engrs.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

▲† **Kan., Salina**—READINESS CREW BLDG.—BA 12/9—U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo., 19,000 sq. ft., bsmnt., 12,000 sq. ft. first floor, rein.-conc. fdn., air-conditioned, etc. readiness crew bldg., Schilling Air Force Base, ENG-23-028-59-25. $1,000,000. Plans deposit $25. CD 11/10.

MINNESOTA—ONTARIO—BA 12/16—Village of Baudette, Village Hall, Baudette, Minn.,

international hy. bridge over Rainy River to connect Baudette, Minn. and Ontario, Canada, incl. bridge structure, foundations, $700,000. Bettenburg, Townsend, Stoltz & Comb, 1437 Marshall Ave., St. Paul, Minn., engrs. CD 6/17, under LB.

BUILDINGS—BA

▲ **Tex., Austin**—OFFICE—BA 11/25—State Bd. Control, Admin. Bldg., Austin, 10 story, bsmnt., cast stone and concrete block exterior walls, concrete footings and slab, etc., office for Texas Emplyment Comm. Hdqrs., $2,600,000. Plans deposit $30. Kuehne, Brooks & Barr, 203 Perry Brooks Bldg., archts. CD 6/14/57.

▲† **Mont., Glasgow**—HOUSING—BA 1/14—Procurement Office, Glasgow Air Force Base, Glasgow, 460 unit Capehart Housing, Glasgow Air Force Base. $7,500,000. CD 9/29.

BUILDINGS—SLC

Tex., Houston—APARTMENT—Dr. B. D. Thompson, 1216 Louisiana St., soon lets contract, 60 unit apartment, 500 block, E. Post Oak Rd., $700,000. Roy W. Leibsle & Assocs., 3702 Almeda Rd., archts. CD 11/14.

HEAVY CONSTRUCTION—LB & CA

▲ **MINNESOTA**—State Hy. Dpt., 1246 University Ave., St. Paul,

Park Constr. Co., Inc. and Associated Engineers & Constructors, Inc., 5137 37th Ave. N. E., Minneapolis, Minn. (joint venture), CA $1,900,725, sand-grav. sub-base, grav. base, concrete paving, plant mixed bit. surf. and bridges 2.2 mi. between 310 ft. south Little Canada Rd. and south end of Northern Pacific Co. overhead on TH 35 and between south end of Northern Pacific Railway Co. overhead to 820 ft. west of jct. with TH 49 (Rice St.) North St. Paul, (11 projects in one contract) all in Ramsey Co. Bids Sept. 26. CD 10/1, under LB.

Crown Iron Works Co., 1229 N. E. Tyler St., Minneapolis, Minn., CA $763,600 (5 bidders), furnish, erect protected metal siding and roofing and erection for Northwest Airlines Main Base at Wold-Chamberlain Field, incl. hangar, engine bldg., shops and store bldg., boiler plant and engine test bldg., MINNEAPOLIS, MINN. Minneapolis-St. Paul Metropolitan Airports Comn., 2429 University Ave., St. Paul, Minn. Bids Oct. 28. CD 10/9.

KANSAS—State Hy. Comn., Junction City,

Maxwell Bridge Co., Inc., Columbus, Kan., CA $691,570, 2 structures, 128 ft. 4-160 ft. 128 ft. steel girder, Br. No. 70-31-9.2, Sta. 76 plus 01, Proj. 70-31 I 70-5 (22) 294 Pt. II, Geary Co. Bids Oct. 31. CD 11/11, under LB.

▲ **KANSAS**—State Hy. Comn., Junction City,

Kan.—**Geo. Bennett Constr. Co.,** 3300 N. 91st St., Bethel, Kan., CA $1,090,734, grading 2.382 mi. Proj. 70-31-I 70-5(22) 294 Pt. II, Geary Co.;

Kan.—**List & Clark Constr. Co.,** 2 W. 40th St., Kansas City 11, Mo., CA $513,478, grading 1.835 mi. Proj. 70-31 I 70-5 (22) 294 Pt. I, Geary Co. Bids Oct. 31. CD 11/11, under LB.

▲ **TEXAS**—State Hy. Comn., Austin,

Tex.—**Trotti & Thompson, Inc.,** Box 70, Beaumont, Tex. CA $898,977. grade, etc. 0.851 mi. Hy. IH 10, Proj. I 56 (16) or I. 10-8 (3) 858, Jefferson Co.;

Tex.—**Markham & Brown,** 1961 N. Industrial Blvd., Dallas, Tex. CA $916,259, grade, etc. 1.974 mi. Hy. IH 45, Proj. I 45-3 (15) 248, Ellis Co. Bids Oct. 14. CD 10/17, under LB.

Glade Constr. Co., 2608 W. Dickson St., Fort Worth, Tex. LB $709,202, Proj. I-1958. water sys. imprvs., distr. sys., tunneling, access road, etc. AUSTIN, TEX. Travis County WC&ID No. 11, 302 W. 15th St., Austin, Tex. Montgomery, Williams & Levander, 302 W. 15th St., Austin, Tex., engrs. Bids Nov. 3.

BUILDINGS—LB & CA

Swedberg Constr. Co., Detroit Lakes, Minn. CA $669,-970, general constr. DISTRICT SHOPS and OFFICE BLDG. for Minnesota Highway Dpt., DETROIT LAKES, MINN. State Dpt. Admin., 19 State Capitol, St. Paul, Minn. Bids Oct. 23. CD 10/29, under LB.

OVER

$16,000.00 SAVING

ON PURCHASE OF

E-102 ELECTRONIC COMPUTER

WITH ATTACHED EQUIPMENT

Used 14 months by Sun Oil Company, this equipment is offered for sale at $30,000. Contact Computer Sales Department, 6000 Camp Bowie Blvd., Ft. Worth 16, Texas. Or call

PE 8-6505 • Ft. Worth

TA 4-5854 • Dallas

This offer subject to prior sale

THE DATICS CORPORATION

Computing • Consulting • Data Processing
Data Reduction • Research & Development

FOUNDATION CONSTRUCTION BY

McKINNEY

DRILLING CO.

BOX 190—LOGAN 4-8373
NACOGDOCHES, TEXAS

CAISSONS

DRILLED & UNDERREAMED

PIERS

WIRE OR PHONE FOR A QUOTATION ON YOUR NEXT FOUNDATION JOB

ANYWHERE IN THE WORLD

OFFICES IN
ATLANTA, GA. • PITTSBURGH, PA.
WASHINGTON, D. C. • CLEVELAND, OHIO

MOVING?

We need your new postal zone number, as well as your change of address.

D'Arcy Leck Constr. Co., 2829 Stevens Ave., Minneapolis, Minn. CA $803,740, general constr. 1 and 2 story GERIATRICS BLDG. at site, GOLDEN VALLEY (P. O. MINNEAPOLIS), MINN. Glenwood Hills Hospital, 3901 Golden Valley Rd., Golden Valley, Minn. Bids Oct. 9. CD 10/15, under LB.

Henry R. Schaeffer Co., 26 W. 3 St., Davenport, Iowa, CA $589,450, general contract 4 story, 63 x 184 ft., brick, concrete DORMITORY, DAVENPORT, IOWA. St. Ambrose College, 518 W. Locust St., Davenport, Iowa. Bids Oct. 15. CD 11/10, under LB.

State Div. P. Bldgs., Chief of Planning & Constr., 100 State Capitol, Jefferson City, Mo., rejected bids Sept. 23 (A) outpatient clinic, nurses home, chapel and recreation (B) solaria addns. to clinic and hall bldgs. and addns. to Harrison and Annex Bldgs. at State Hospital No. 4, FARMINGTON, MO. LB (A) $868,159 LB (B) $829,516. CD 10/8, under LB.

▲ **Peterson Development Co.**, 6828 Highway 9, Kansas City, Mo., Owner Builds. $3,000,000, 1,200 some 2 story garden type HOUSES incl. SHOPPING CENTER, LIBERTY, MO. Donald R. Hollis, 9423 W. 7, Kansas City, Mo., archt. for shopping center.

▲ **Alport Constr. Co.**, 502 Title Guaranty Bldg., St. Louis 1, Mo., CA $3,068,500 10 story above ground and two below, brick, stone, rein-con. etc. David P. Wohl MEMORIAL CLINICS BLDG., Audubon Ave. East of Wohl Hospital, ST. LOUIS, MO. Washington University, Lindell and Skinker Blvds., St. Louis 5, Mo. Bids Sept. 23, awarded Nov. 6. CD 10/7, under LB.

B & B Bldg. Co. and J. B. Bldg. Co., 7567 St Charles Rock Rd., Overland 14, Mo., Owner Builds, $627,363, 61 addnl. brick, frame DWELLINGS, Hathaway Manor No. 14 in School District R-1, ST. LOUIS COUNTY, MO.

▲ **MacDonald, Frazier-Davis & Assocs. (MacDonald Constr. Co., Frazier-Davis Constr. Co., Wyatt & Kipper Engineering Inc. and Sachs Electric Co.)**, 1310 S. Grand Blvd., St. Louis 4, Mo. CA general constr. fourth section of Meramec POWER PLANT, Meramec and Mississippi Rivers, ST. LOUIS COUNTY, MO. Union Elec. Co. of Missouri, 315 N. 12th Blvd., St. Louis, Mo. CA Total est. $22,000,000.
Mississippi Valley Structural Steel Co., 3117 Big Bend Blvd., Maplewood 17, Mo. and **Stupp Bros. Bridge & Iron Co.**, 3800 Weber Rd., St. Louis 23, Mo. CA structural steel (St. Louis County, Mo.);
Midwest Piping Co., Inc., 1450 S. 2nd St., St. Louis 4, Mo. CA piping (St. Louis Co., Mo.);
Massman Constr. Co., 7332 S. Lindbergh Blvd., St. Louis 23, Mo CA water intake (St. Louis County, Mo.);
Sachs Electric Co., 5540 W. Park Ave., St. Louis 10, Mo. CA electric work (St. Louis County, Mo.).

▲ **Fluor Corp., Ltd.**, 2500 Atlantic, Los Angeles, Calif. CA Est. $7,000,000; remodeling, conversion catalytic reformer refinery unit into SAVAFORMER, BEAUMONT, TEX. Magnolia Petroleum Co., N. Esperson Bldg., Houston, Tex. CD 11/13.

Construction Engineering Co., 700 Rosine St., Houston, Tex. CA $870,000, est. $745,000. M. A. Carpenter Elementary SCHOOL, DEER PARK, TEX. Deer Park Ind. School Dist., Deer Park, Tex. Bids Nov. 4. CD 10/9.

▲ **Carl A. Schneider Constr. Co.**, 3004 W. Dallas St., Houston, Tex. CA $1,100,000. SHOPPING CENTER, Bellaire Blvd., Chimney Rd. and Chimney Rock, HOUSTON, TEX. Frank E. Meyer, Builder, 802 Franklin St., Houston, Tex. CD 5/23.

▲† **J. W. Bateson Co., Inc.**, Gibraltar Life Bldg., Dallas, Tex., CA $1,273,000, GUIDANCE BLDG., antenna fdn. and TRANSMITTER BLDG., at White Sands Missile Range, LAS CRUCES, N. M. U. S. Eng., P. O. Box 1538, Aubuquerque, N. M. CD 9/5.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS

December 2 Idaho **December 3, 10, 11 California**

BUILDINGS—BA

Calif., Harbor City—HOSPITAL—BA 12/1—Harbor Osteopathic Hospital, Inc., 25916 S. Western Ave., (selected list of bidders) 2 story hospital bldg., 1437 Lomita Blvd., $700,000. Hugh R. Davies & Vance Clark. Security Bldg., Long Beach, archts.

Wash., Seattle—INSTITUTE—BA 12/2—University of Washington, E. 45 St. and 17 Ave., 3 story, bsmnt., steel frame bldg. to house institute for heart and cancer research. $850,000. Plans deposit $100, Naramore, Bain, Brady & Johanson, 904 7 Ave., archts. CD 2/25.

Calif., Glendale—SCHOOL—BA 12/9—Glendale Unified School Dist., 411 E. Wilson Ave., Maryland Elementary School, La Crescenta. $679,406. Baird & Warner, Bank of America Bldg., archts. CD 8/15.

▲ **Calif., Los Angeles**—HALL OF RECORDS—BA 12/19—Clerk Los Angeles Co. for County Bd. Retirement, Los Angeles Co. Hall of Records, multi story Hall of Records Bldg. in Los Angeles Civic Center. $10,247,000. Neutra & Alexander, Honnold & Rex, Friend & Light, 2379 Glendale Blvd., archts. CD 4/20/55.

HEAVY CONSTRUCTION—LB & CA

▲† **Cherf Brothers, Inc., Sandkay Contractors, Inc., and Pfeiffer & Pontius**, Ephrata, Wash., CA $1,215,273, earthwork and structures for Block 82 laterals, waste-ways, and drains, Royal Branch canal laterals, Columbia Basin Project, DC-5093, WASHINGTON. Bureau Reclamation, Dpt. Interior, Ephrata, Wash. Bids Oct. 7. CD 10/14, under LB.

† **Fredericksen & Kassler**, 212 E. 13th St., Sacramento, Calif. LB $739,438 (20 bidders) East Twin and Warm Creek channel imprv. Central Ave. to Santa Ana River, Santa Ana River Basin, Redlands in San Bernardino Co., ENG-04-353-59-10, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Nov. 6. CD 10/10.

▲† **Ferry Bros.**, 5201 San Fernando Rd., Glendale, Calif. LB $1,149,142 (8 bidders) levee constr. and channel imprvs. (diversion structure, channel, clearing, levee, new irrigation and drainage, etc.) Middle Creek Proj., Lake Co., ENG-59-22, Spec. 2491, CALIFORNIA. U. S. Eng., 1209 8th St., Sacramento, Calif. Bids Nov. 6. CD 10/3.

† **C. S. Williams**, 7662 Broadway, Lemon Grove, Calif. LB $723,000, est. $750,000. (7 bidders) 200 man bachelor quarters at San Nicolas Island Naval Air Missile Test Station, Spec. 17665-58 POINT MUGU, CALIF. Eleventh Naval Dist., 1220 Pacific Hy., San Diego, Calif. Bids Nov. 4. CD 10/7.

▲ **John A. Artukovich Sons, Inc.**, 16200 S. Atlantic Paramount, Calif. CA $1,157,077, sewers in Pacific Hy. from Balboa Ave. to San Diego River, SAN DIEGO, CALIF. City, 1600 Pacific Hy., San Diego, Calif. Bids Oct. 28, awarded Oct. 30. CD 11/7/52.

BUILDINGS—LB & CA

▲ **H. Halvorson, Inc.**, P. O. Box 6, Yardley, Wash., CA $2,500,000, 181,000 sq. ft., rein.-con. RETIREMENT HOME BLDG., SPOKANE, WASH. Spokane Methodist Homes, Inc., c/o Frank Jenkins, W. 404 Boone St., Spokane, Wash. Awarded Nov. 10. CD 9/30.

▲ **S&S Constr. Co.**, 1750 S. La Cienega Blvd., Los Angeles 35, Calif. Owner Builds. $1,352,988. 83 stucco DWELLINGS, Stevely Ave., 9th, 10th and 11th Sts., LONG BEACH, CALIF.

C-B Bldg. Corp., 815 Moraga Dr., Los Angeles 49, Calif. CA $779,963, mens and womens RESIDENCE HALLS, LOS ANGELES, CALIF. Occidental College, 1600 Campus Rd., Los Angeles, Calif. Bids Oct. 24. CD 11/3, under LB.

▲ **Berlin Bldg. Corp.**, Box 1500, Poway, Calif. Owner Builds. $1,050,000. 98 frame DWELLINGS, Tobiasson, Vaughn, and Frame Rds., POWAY, CALIF.

Alco Pacific Constr. Inc., 9354 Westminster, Westminster, Calif. CA $855,000. 95 stucco DWELLINGS, Tr. 2772, SANTA ANA, CALIF. Sol Vista Homes, 9354 Westminster, Westminster, Calif.

▲ **Stiglbauer Bros.**, 8148 E. Phlox St., Downey, Calif. CA $1,387,000. North Torrance HIGH SCHOOL addn., Contr. No. 4, TORRANCE, CALIF. Torrance Unified School Dist., 2385 Plaza del Amo, Torrance, Calif. Bids Oct. 31, awarded Nov. 4. CD 11/6, under LB.

▲ **Kemp Bros.**, 8750 Mettler St., Los Angeles, Calif. CA $1,729,000. (6 bidders) constr. HIGH SCHOOL No. 6, (Pioneer) Washington and Pioneer Blvds., Los Nietos, WHITTIER, CALIF. Whittier Union High School Dist., 12100 E. Washington Blvd., Whittier, Calif. Bids Nov. 6. CD 10/17.

▲ **Bill A. Smith & Co.**, 5818 Venice Blvd., Los Angeles, Calif. LB $1,632,384, OFFICE and WAREHOUSE BLDG., WHITTIER, CALIF. Eastman Kodak Co., Slauson Ave. near Washington Blvd., Whittier, Calif. CD 7/11, under Industrial Bldgs.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
November 26, December 10 Ontario

▲ **N.W.T., Yellowknife**—BA 12/15—Northern Canada Power Comn., 251 Bank St., Ottawa, Ont., power development and spillway modification, Snare Rapids power site, approx. 90 mi. northwest of here. Over $2,000,000. Plans deposit $200. Montreal Engineering Co. Ltd., 244 St. James St. W., Montreal, Que., engrs. CD 10/3.

BUILDINGS—BA

▲ **Alta., Calgary**—HOUSES—BA 11/27—Central Mortgage & Housing Corp., 870 Portage Ave., Winnipeg, Man., 200 houses and ground services. $1,700,000. Plans deposit $100. Regional Constr. Engr., C.M.H.C., 870 Portage Ave., Winnipeg, Man., engr.

HEAVY CONSTRUCTION—LB & CA

▲ **ALBERTA**—Dpt. P. Wks., Hunter Bldgs., Ottawa, Ont.,

Storms Contg. Co. (Pacific) Ltd., 342 W. Pender St., Vancouver, B. C. CA $1,110,834, grading, culverts, granular base course, prime and road mix Mile 74 to Mile 82.3 Banff-Jasper Hy., Banff National Park. Awarded Nov. 6. CD 10/13, under LB.

MANITOBA—Manitoba Govt., Legislative Bldg., Winnipeg,

Carter Constr. Co. Ltd., 525 Kylemore Rd., Winnipeg, Man., CA $658,199 grading 3 sections Simonhouse-Wekusko Rd. Awarded Nov. 4.

▲ **NOVA SCOTIA**—Nova Scotia Dpt. Hys., Parliament Bldgs., Halifax,

Pentagon Constr. Co. Maritimes Ltd., 5005 Namur St., Montreal, Que. and Fredericton, N. B. CA Approx. $4,000,000 (2 bidders) bridge substructure and approaches, 1.5 mi. Trans Canada Hy., Great Bras d'Or Crossing at Seal Island. Bids Oct. 24, awarded Nov. 7. CD 10/1.

McNamara Constr. Co., Ltd., 42 Industrial St., Toronto, Ont., CA $622,000, dredging in 2 areas, Little English Bay, QUEBEC. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont.

McNamara Constr. Co. Ltd., 13120 125th St., Edmonton, Alta., CA $812,030, stripping and stock piling 621,000 tons concrete aggreg. for South Saskatchewan River Dam, near Elbow, SASKATCHEWAN. Prairie Farm Rehabilitation Dpt. Agriculture, Motherwell Bldg., Regina, Sask. Awarded Oct. 30. CD 9/25, under LB.

▲ **W. C. Wells Constr. Co. Ltd.**, 140 Ave. F.N., Saskatoon, Sask., LB $1,085,025, air terminal bldg. Regina Airport, REGINA, SASK. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Bids Oct. 16. CD 9/24.

BUILDINGS—LB & CA

▲ **Fidelity Constr. Ltd.**, 91 Bruce St., Oshawa, Ont., CA Est. $1,000,000 (9 bidders), SCHOOL, Farley Ave., BELLEVILLE, ONT. Bay of Quinte Dist. High School Bd., 226 John St., Belleville, Ont. Bids Oct. 21, awarded Oct. 31. CD 10/2.

▲ **Anglin-Norcross Ontario Ltd.**, 224 Davenport Rd., Toronto, Ont., CA $5,301,220 (8 bidders), approx. 18 BLDGS. at Ontario Hospital for Retarded Children, CEDAR SPRINGS, ONT. Ontario Dpt. P. Wks., Parliament Bldgs., Toronto, Ont. Awarded Nov. 3.

▲ **Dell Constr. Co. Ltd.**, 2461 Bloor St. W., Toronto, Ont., CA $3,930,058 (10 bidders) 7 story, 89x270 ft. poured concrete fdn. rein.-con. shell, stone hollow tile, air conditioned, ADMINISTRATION BLDG., 159-165 College St., TORONTO, ONT. Toronto Bd. Educ., 155 College St., Toronto, Ont. CD 10/10, under LB.

Orsini Constr. Ltd., 363A Rogers Rd., Toronto, Ont. CA $929,928 (12 bidders) WINCHESTER SENIOR PUBLIC SCHOOL, TORONTO, ONT. Toronto Bd. Educ., 155 College St., Toronto, Ont. Awarded Nov. 5. CD 11/25/57.

Perini Ltd., 49 Jackes Ave., Toronto, Ont. CA Est. $900,000 20 story SHOPPING PLAZA, Jane St., TORONTO, ONT. Owner, c/o Perini Ltd., 49 Jackes Ave., Toronto, Ont. Burston & Wells, 30 Prince Arthur Ave., Toronto, Ont., archts. Awarded Nov. 4.

C. A. Smith Contg. Co. Ltd., 1048½ Kingston Rd., Toronto, Ont. CA $619,070 (12 bidders) Old Orchard SCHOOL, Dovercourt SCHOOL, TORONTO, ONT. Toronto Bd. Educ., 155 College St., Toronto, Ont. Awarded Nov. 10. CD 11/13, under LB.

▲ **Robert McAlpine Ltd.**, 310 Victoria Ave., Montreal, Que., CA Total Est. $5,500,000, superstructure 7 story, NEWSPAPER PLANT AND OFFICE, Craig St. W., at St. George St., MONTREAL, QUE. Montreal Star Co. Ltd., 245 St. James St. W., Montreal, Que. Barott, Marshall, Merrett & Barott, 1425 Mountain St., Montreal, Que., archts. Lindley Shector, 1425 Mountain St., Montreal, Que., engr.

▲ **Foundation Co. of Quebec Ltd.**, 1900 Sherbrooke St. W., Montreal, Que. CA Est. $2,500,000, 1 story, 360 x 560 ft. PAPER SPECIALTY PLANT; 2 story, brick structural steel, brick OFFICE SECTION, POINTE AUX TREMBLES, QUE. Continental Paper Products, subsidiary of Canadian International Paper Co., 1463 Sun Life Bldg., Montreal, Que. Dunford, Bolton, Chadwick & Ellwood, 4101 Sherbrooke St. W., Montreal, Que., archts. Foundation of Canada Engineering Corp. Ltd., 1980 Sherbrooke St. W., Montreal., engrs. Awarded Nov. 3. CD 10/8.

▲ **La Cie de Constr. Mitis Ltee.**, 6 St. Jean St., Rimouski, Que., CA approx. $3,000,000 clearing, grading, constructing roads, sewers and water mains 134 HOUSES and SINGLE MEN'S RESIDENCES at Fort Cartier, Mining Camp, Stage 1 of townsite development SHELTER BAY, QUE. Quebec Mining Co., 1225 Laird Blvd., Mont Royal, Que. Rother-Bland-Trudeau, 1552 St. Matthew St., Montreal, Que., archts. Beauchemin, Beaton, Lapointe, 6655 Cote des Neiges Rd., engrs. CD 4/30/56.

▲ **Poole Constr. Co. Ltd.**, Hamilton and 8th Sts., Regina, Sask., CA $1,122,057, steel, concrete BIOLOGY BLDG., University of Saskatchewan campus, SASKATOON, SASK. Saskatchewan Govt., Regina, Sask. Izumi, Arnott & Sugiyama, Regina, Sask., archts.

U. S. POSSESSIONS

HEAVY CONSTRUCTION—LB & CA

▲ **Vladimir Ossipoff**, Hawaiian Life Bldg., Honolulu, T. H. CA $1,200,000, design and construct 2 deck GYMNASIUM, 25-yd. outdoor pool, group work and administration bldg., HONOLULU, T. H. City-County of Honolulu, 530 So. King St., Honolulu, T. H.

FOREIGN

HEAVY CONSTRUCTION—BA

▲ **Greece**—COMMUNICATION STATIONS—BA 1/15—General Air Staff, Ministry of Defense, Athens, communication stations, incl. hardstand, buildings, antenna towers, access roads, lighting, heating, ventilators and sewerage systems, Attica, Cephalonia and Magnesia. $1,300,000.

BUILDINGS—BA

▲ **Peru, Iquitos**—PLANT—BA 12/3—Division de Obras Electricas, Direccion de Industrias y, Electricidad, Ministerio de Fomento y Obras Publicas, Lima, constr. 3000 kw. thermoelectric plant, electric lines and substations, $1,400,000. Plans deposit $25.

(Proposal Advertisements see pp. 112 to 114)

BEHIND THE SCENES at the new electronically controlled, fully automatic factory for making Du Pont Electric Blasting Caps (both regular and delay).

Automatic loading and electronic controls give you Du Pont Electric Blasting Caps that are even more reliable, more uniform than before

Let us take you behind the scenes at the world's most modern blasting cap plant. Then, you'll see why Du Pont Electric Blasting Caps, both regular and delay, are years ahead in reliability, uniformity and dependability.

Any possibility of human error has been completely erased from this scene. Every step in the process, from automatically loading the shell (and inspecting it 3 times during loading alone), to applying the shielded shunt and paper band is controlled electronically.

This revolutionary approach means that every Du Pont electric blasting cap—regular or delay—*must* meet our rigid standards at *every step* or it will be automatically rejected by one of the dozens of electronically controlled "watchmen."

This elimination of the human equation means that all Du Pont Electric Blasting Caps are even more uniform, more reliable, more dependable than ever before.

And you get all these benefits at NO INCREASE IN COST. Call your Du Pont representative or write to E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware.

DU PONT BLASTING CAPS

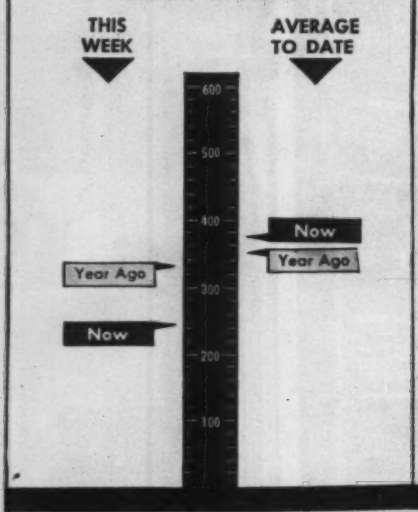
DU PONT *Products of Du Pont Research*

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

Construction Scoreboard

ACTIVITY THIS WEEK

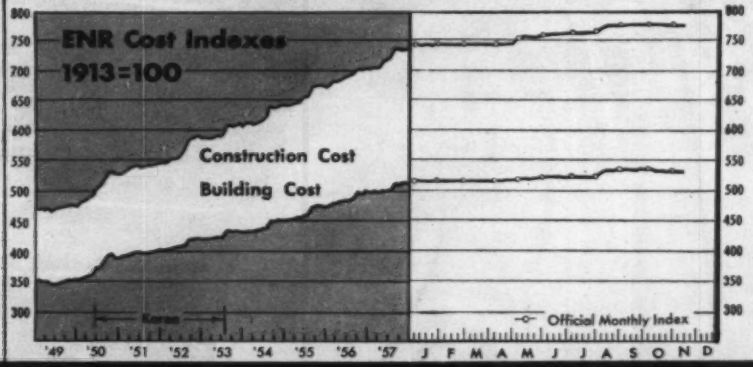
Contract Awards
Millions of Dollars



COST INDEXES AS OF NOW

ENR INDEXES (1913=100), 20-cities' average	Week of Nov. 13 1958	% Change from Oct.16 1958	% Change from Nov. 14 1957
Construction Cost	773.85	−0.15	+5.02
Building Cost	534.96	−0.26	+3.55

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.



AMOUNT OF CONTRACTS LET

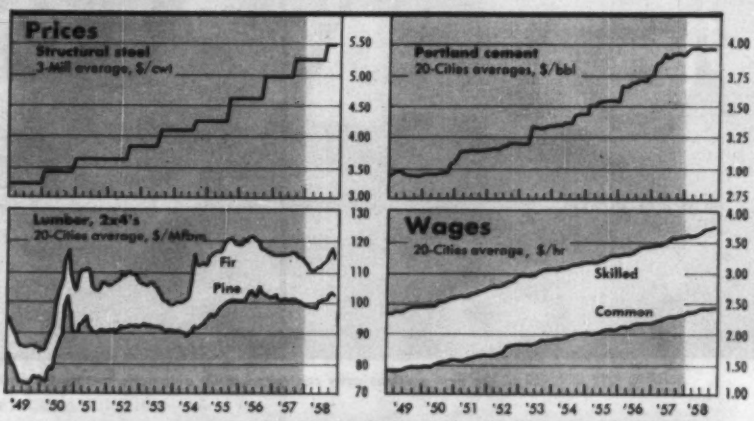
By Ownership	This Week	Cum. 47 wks 1958 millions	Chge '57-'58 %
All Heavy Constr.	$343.0	$17,539.8	+5
Private	119.6	7,054.8	−10
Public	123.4	10,485.0	+19
State & Municipal	108.9	7,827.1	+16
Federal	14.5	2,657.9	+26
By Type of Work			
Public			
Waterworks	1.5	274.4	−18
Sewerage	13.6	551.4	+9
Bridges*	6.2	655.8	−2
Highways	55.6	3,357.2	+23
Earthwork, Waterways	4.7	983.1	+7
Buildings, Excl. Housing	27.2	2,393.8	+12
Housing	0.9	1,007.7	+68
Unclassified	13.7	1,271.8	+35
Private			
Mass Housing	44.1	3,393.2	+21
Commercial	24.6	1,654.7	+2
Industrial	42.0	1,621.1	−44
Unclassified	8.9	375.6	−22

* Includes private bridges.

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

NEW CAPITAL FOR CONSTRUCTION

	Week of Nov. 13	Cum. 46 wks 1958 millions	Chge '57-'58 %
Corporate Securities	$140.4	$4,661.3	−11
State and Municipal:			
All Except Housing	73.0	5,561.3	+12
Housing	...	114.5	−27
Federal Loans	14.3	184.9	+1
Federal Aid	...	2,596.0	+20
Total Nonfederal	$227.7	$13,118.3	+4
Federal Appropriations:			
Projects in U. S.	...	$3,946.1	+42
Outside U. S.	...	35.2	+21
Total New Capital	$227.7	$17,099.5	+11



ENR COST INDEXES IN 22 CITIES, 1913 = 100

City	Construction Cost Nov. 1958	Construction Cost Percent Change from last Month	Construction Cost Percent Change from last Year	Building Cost Nov. 1958	Building Cost Percent Change from last Month	Building Cost Percent Change from last Year
Atlanta	584	0	+6.5	472	0	+3.5
Baltimore	708	0	+5.7	537	+0.6	+3.3
Birmingham	619	0	+10.0	493	0	+5.0
Boston	797	−0.5	+3.4	536	−0.8	+1.5
Chicago	859	−0.2	+2.7	562	−0.3	+6.3
Cincinnati	778	−0.3	+4.0	516	−0.5	+2.5
Cleveland	880	0	+2.3	533	0	+1.3
Dallas	573	0	+4.9	469	0	+4.0
Denver	731	0	+2.8	530	0	+1.6
Detroit	892	0	+7.4	576	0	+5.8
Kansas City	768	0	+3.5	533	0	+3.3
Los Angeles	828	0	+6.4	534	0	+4.1
Minneapolis	824	0	+4.5	553	0	+2.9
New Orleans	619	+1.6	+4.8	496	+0.7	+3.4
New York	947	−0.6	+6.7	617	−0.8	+4.3
Philadelphia	790	−1.6	+2.0	569	−2.2	+1.3
Pittsburgh	827	+0.7	+5.0	593	+0.5	+4.4
St. Louis	844	−0.7	+6.0	563	−1.1	+3.1
San Francisco	812	−0.8	+6.4	532	−1.2	+4.7
Seattle	799	−0.3	+3.0	484	−0.5	+3.5
U. S.—20 Cities' average	774	−0.2	+5.0	535	−0.3	+3.5
Montreal	603	0	+2.0	449	0	−0.8
Toronto	619	0	+1.7	466	0	−1.0

Machinery Orders to Climb

Makers say sales will rise 15% in first nine months of 1959; current quarter may also improve

Construction machinery sales are expected to climb to a record rate during the first three quarters of next year. Sales in 1958's fourth quarter may also show a strong improvement.

These predictions come from machinery manufacturers reporting to the McGraw-Hill Department of Economics, which computes the New Orders Index for Construction and Mining Machinery (see chart). ENR figures, however, indicate the 1959 expectations may be too optimistic.

Volume in September was at an index value of 224, based on 1949=100. This is a slight improvement over the revised figure of 223 for August.

The downward revision of the August index from the 254 originally reported is significant. It reverses the uptrend in orders previously reported.

Instead of a climb in August, the index now shows an 11% drop below July and a 3% decline from August 1957. But the reading for September does equal the year-ago volume.

• **Short-term hopes**—In contrast to the September value of 224, manufacturers are anticipating that sales will rise to an average of 233 during the final three months of this year.

Then they forecast increases to 261 in the first quarter of 1959 and 286 in the second quarter. The third quarter of next year is expected to bring a slight seasonal dip. The index value is expected to go to 273.

The forecast for the first nine months of next year represents a rise of 15% over the first nine months of 1958. It would be a record high for such a period.

• **Too much optimism**—The forecast for 1959's first nine months appears too optimistic.

Demand for new construction machinery is created by heavy construction contracts. ENR's preliminary forecast for 1959 heavy construction awards places the rise at 3% above 1958 (ENR Aug. 7, p. 21). This would be a contract award index value of 247 in 1959, based on 1949=100. Last October's value is at 207 (see chart).

Although the contract award index will be at 247, machinery manufacturers expect the New Orders Index to average 273 in the first nine months of 1959.

Contracts would have to rise much faster than the increase forecast by ENR if equipment buying by contractors is to live up to the expectations of the manufacturers. There is no indication now that the 1959 contract rise will be greater than forecast.

This year, ENR estimates the Contract Award Index will be 239 for the full 12 months. On the basis of the first nine months and the 1958 fourth quarter forecast of equipment manufacturers, the New Orders Index for Construction and Mining Machinery is expected to be 236. This is close to the Contract Award Index.

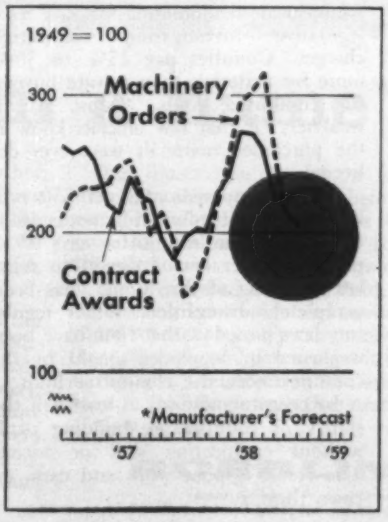
Last year, the New Orders Index averaged 229 for the full year. The Contract Award Index was 220.

• **Market's size**—The orders index also gives some measure of the size of the market in terms of dollars.

On the basis of actual shipment figures for 1956, the New Orders Index indicates that 1958 order volume will amount to $1.7 billion. This excludes exports.

The addition of exports will place total shipments in 1958 at close to $2.2 billion. This is not far below the record of $2.4 billion in 1956.

If the forecast of 1959 orders proves to be fairly accurate, total output of construction machinery and parts would top $2.5 billion.



• **Contracts vs orders**—Relationship of orders to awards can be noted on the chart. The turnaround in the machinery order trend in September is following the downturn in heavy construction contracts.

The index of ENR construction contracts is off sharply from the peak rate of 1958 set in July. Though the decline did slow in October, when the index dipped 4% under September, the month's total is the first since last March to go below the year-ago volume.

Consultants Ask $354,447 For Ohio Turnpike Delays

Tippets-Abbett-McCarthy-Stratton, New York City consulting engineers, are suing the Ohio Turnpike Commission for $354,447.

The firm claims the commission caused delays in building parts of Ohio's turnpike.

Delays, the firm says, stemmed partly from changes in construction schedules and partly from a dispute between the commission and the City of Elyria over road location.

Construction time was lengthened from an anticipated 24 months to 34 months, the consultant says. This resulted in added winter work.

The bulk of the claim—$290,000—represents added expenses for inspection and surveying. The remainder is retained percentage of the contract price still held by the commission.

Coordinated Building Plans Save $50,000 for Akron

By combining design, planning and bidding for two schools at once, the Akron, Ohio, Board of Education reports saving more than $50,000.

Two junior high schools—one in the northwest and the other in the southwest of the city—are being built for $1 million each.

Architects drew identical plans for each school, but they charged 25% less for the second set. That saved $15,000.

Among the other savings: $12,375 for general contracting; $2,000 for plumbing; and about $1,000 for electrical equipment.

(B&F continued on page 104)

States Study Prequalification

Pennsylvania plans use of system for highway contractors; Maryland re-examines its program

Pennsylvania took a first look at prequalification of highway contractors and likes what it saw. But Maryland is taking a second look at its existing prequalification plan because some contractors don't like it.

For the first time, contractors will be required to prove their qualifications before thay can bid on Pennsylvania highway jobs. The State Highway Department will demand financial statements and performance and equipment availability statements twice a year. These will be the bases for rating each contractor as to maximum dollar volume of construction on which he may bid.

The department will also rate each contractor by type of work for which he's eligible: paving, bridges, landscaping or general construction.

A financial statement, dated no more than 20 days before the bid-opening date, must accompany each bid submitted under the new plan.

District engineers will rate the performance of contractors now at work. They'll check the physical performance of contractors' forces—how they're organized, whether work is finished on time and how efficiently it's conducted. The new policy is expected to speed contract awards.

In Maryland, the State Roads Commission is asking for contractors' comments in reappraising its prequalification requirements. The commission received a quick answer from Baltimore contractor Charles W. Williams.

Mr. Williams labels the present policy "discriminatory and against the public interest."

He says that last spring he submitted the apparent low bid of $2.4 million for a section of the Baltimore-Harrisburg Expressway. The commission rejected his bid in favor of one that was $22,900 higher. It was rejected because the commission ruled Mr. Williams did not have enough personnel, equipment or money to handle the work. His bid was also disqualified, in part, because his company was behind in other work for the state and for the City of Baltimore.

Mr. Williams contends such practices raise construction costs and thus "work against the public interest." He asserts that prequalification curbs initiative and free enterprise by prejudging who may bid on highway jobs.

Such restrictions, he says, will reduce competitive bidding. A completion bond posted to insure meeting terms of the contract should be sufficient guarantee for the commission, according to Mr. Williams.

Pennsylvania's prequalification requirements result from suggestions by the Automotive Safety Foundation. ASF made a study of the Pennsylvania Department of Highways earlier this year (ENR Sept. 4, p. 27).

Under the present system, the ASF report pointed out, the low bidder is checked for competence after bids are opened. When low bidders prove unqualified, jobs must be readvertised. Unit bid prices are not disclosed until jobs are actually awarded.

The low rate of defaulting shows existing qualifying methods effectively screen out unqualified contractors. But, ASF said, post-qualification, instead of prequalification, sometimes embarrasses officials, makes unnecessary work for contractors and delays the awarding of contracts.

Pennsylvania is also considering prequalification for subcontractors.

The highway department will specify the first deadline for contractor qualification after details of the new policy are worked out.

Pennsylvania is the 41st state to require prequalification of contractors for highway work.

County Road Authorities Investigated in Oklahoma

County commissioners in Oklahoma are misusing roadbuilding funds, a state legislative investigating committee charges. Counties pay 25% to 30% more for materials than private buyers, the committee finds. "Most glaring weakness" is that few officials know if the purchased materials were ever delivered.

County commissioners get $30 million in annual roadbuilding money from the state. The committee says 1955 purchase order law, designed to regulate spending of this money, has been completely disregarded. Other regulatory laws passed at that time have been weakened by loopholes sought by the commissioners, the committee finds.

Investigators also say at least half the state's 77 counties are building roads without engineering skill or advice. The result is poor work and early repairs, they say.

Maine Construction Budget Placed at $96.4 Million

Maine's agency heads have submitted new budget proposals that include $96.4 million for highway construction and new buildings.

Highway plans call for expenditure of $21.3 million in state funds and $40.1 million in federal-aid money for the two-year fiscal period starting July 1, 1959. New building construction in that time is pegged at $35 million.

General fund agencies requested $123 million for the two-year period, but revenues of only $104.4 million are anticipated. Part of this deficit may be pared from the highway and building construction budgets. Two years ago, when construction requests were $25 million, the state legislature cut out $11 million from the proposals.

The highway commission plans to use $14.2 million remaining from a 1957 bond issue to carry out its program. Current revenues, particularly gasoline taxes and license and registration fees, are expected to increase in the next two years. But routine operating expenses are also likely to go up.

Four-Hour 'Subbid' Lead Gives Contractors a Break

General contractors in parts of both North and South Carolina find that four hours can make a difference in their bid prices. And in their digestion, too.

These advantages are provided by the "Four-Hour Subbid Plan." Under it, subcontractors must submit their bids four hours before the time general contractors must give their bids to owners or architects.

Spokesmen for Associated General Contractors say the plan will bring "more realistic bids because we have more time to put figures together. It will also mean better prices to the buyer of construction."

And a member of one of AGC's committees noted a non-business advantage of the procedure. Contractors, he said, won't get ulcers from putting bids together at the last minute. "Now we have time to eat lunch and still get back to the office for a last minute check before bids are submitted."

The plan, in operation less than three months, already is proving its value to contractors in Charlotte and Durham, N. C., and in Columbia and Greenville, S. C. On the basis of the plan's effectiveness so far, the Carolinas Branch of AGC is urging adoption of the procedure throughout the two states.

(*B&F continued on page 106*)

What's in a name?

In some cases, you'll never know. In other cases, it's clearly evident. Here, in the above illustration, you have the obvious and the obscure. Two reels of what appear to be identical prestressed strand. At this point, the similarity ceases.

It is from this point that most buyers of the "guess who" strand are strictly on their own. In most cases they can't find out who made it even when they want to. Except to learn that it comes—like cinnamon—from a distant shore. If something goes wrong, these buyers find that they get nowhere at all when they pick up the telephone and ask for the Distant Shore Operator.

Our illustration is not in any way big enough to show you what is behind, and *what preceded* the reel that identifies itself, and the superior product that is on this reel. It's difficult to *show* fourteen years of experience in the prestressed concrete field, to show the engineering knowledge and assistance that is yours whenever you want or need it. It's all there, though, and you can get it by communicating with Construction Materials Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

ROEBLING

Branch Offices in Principal Cities
Subsidiary of The Colorado Fuel and Iron Corporation

Consult Roebling ... First in the U. S. with Prestressing and Tensioning Elements

Two Boosts for Air Conditioning

An air conditioning manufacturer and a contractor are moving separately to expand their share of the air conditioning sales and installation business.

Hudik-Ross, New York City mechanical contractors, will install air conditioning systems in all types of new or existing buildings under a leasing arrangement. Carrier Corp., air conditioning manufacturer, is promoting the idea of designing new schools around central air conditioning systems.

Under the Hudik-Ross plan a central system of air conditioning, heating and ventilating can be leased for two to seven years. Rental also will cover costs of all needed piping, sheet metal and electrical work. The monthly payments will be based on the cost of the installation, length of the lease and the credit rating of the customer.

The lease may be renewed on a year-to-year basis. Rental will equal 5% of total cost of the original installation. A customer may also buy the system for 10% of the contract installation cost if it's more than $10,000. On smaller systems, the purchase price will be 12% of the original installation cost.

The Hudik-Ross plan will reduce both the cash investment and the size of the mortgage on new buildings, officials of the firm say. They add that monthly rental for the facility can be charged as an operating expense. The cost of the equipment therefore comes out of current income before taxes rather than profits after taxes. Hudik-Ross will install systems under lease in any part of the northeastern U. S.

Carrier Corp. is basing its sales drive on economy. Charles V. Fenn, Carrier vice president, contends that air conditioning systems can be installed in schools for the same or less cost than conventional equipment, if the building is designed for central air conditioning and ventilation.

He says central air conditioning would make possible more economical single level and multistory block-type buildings. Such structures would eliminate long expensive wings needed to obtain cross ventilation, reduce ceiling heights, reduce the amount of land needed and lower maintenance costs.

Business Briefs . . .

• **Earnings up**—Clark Equipment Co. reports improved earnings in the third quarter. Sales totaled $38 million compared to $36.3 million in the second quarter. But sales for the first nine months are still below 1957.

• **Overseas market growing**—Blaw-Knox Co., Pittsburgh, set up a new affiliate in London to answer the demands for its construction services. New organization is Blaw-Knox Chemical Engineering Co., Ltd. Process work will be its specialty.

• **Cooperative plans dam**—The Lewis-Clark Generation and Transmission Cooperative of Walla Walla, Wash., has applied to the Federal Power Commission for a permit to study construction of a hydroelectric dam on the Yaak River in Montana. A dam may be feasible at the Long Meadows site if operated with other proposed plants on the river and in coordination with the Northwest Power Pool, according to a report by H. Ziner & Associates, consulting engineers of Seattle.

• **Steel fabricator expands**—Chicago Bridge & Iron Co. will construct a 100 x 400-ft building for structural fabrication at each of its plants at Greenville, Pa., and Salt Lake City.

• **Organization dissolved**—Toncan Culvert Manufacturers Association, which has its headquarters in Cleveland, has been dissolved. Liquidation is now in process. According to Hubert E. Snyder, managing director, the group was a "victim of industrial evolution." No other reasons were given for the dissolution.

• **New engineering subsidiary**—Jackson & Moreland, Inc., Boston engineering firm, has formed a wholly owned subsidiary to handle the company's practice in Latin America. The affiliate, Jackson & Moreland International, Inc., will have offices in Boston and New York City.

• **Asbestos mine and mill start up**—National Gypsum Co. has begun operation of its new asbestos mine and mill at Thetford Mines, Quebec. Production at the new unit will amount to 50,000 tons annually.

• **New concrete plant**—American-Marietta's $500,000 concrete products plant in Birmingham, Ala., will soon be in operation. The plant manufactures all types and designs of concrete pipe and precast concrete products, including sewer pipe from 12 in. to 16 ft in diameter.

City Experiment Backed With Federal Money

The federal government is backing with $2 million an experiment to decentralize public housing operations in Philadelphia.

Under a plan initiated by the city's Public Housing Authority, existing houses will be bought by the agency, repaired and modernized, then leased to families eligible for public housing (ENR April 3, p. 113).

The agency has set a maximum figure of $10,000 each as cost of both purchase and rehabilitation of the properties. Most of the structures under consideration for purchase are in partially blighted areas. The plan will fit into Philadelphia's urban redevelopment programs.

New York Says 'Yes' To All Bond Proposals

New York State voters approved all of the $200 million in bonding proposals on the November 4 ballot.

A recount completed late last week shows that an issue of $100 million, first counted as "defeated," actually was passed (ENR Nov. 13, p. 21).

Approval of this issue pushes total ratifications in the nation to 73.1% of the $2.1 billion of construction bonds proposed to voters. Counting the New York issue as defeated put ratifications at 68.3% of the total.

Steel Fabricators' Orders To Increase 9% Next Year

Fabricators predict a 9% rise in structural steel orders next year. W. Frank Morris, a director of the American Institute of Steel Construction, says new orders for structural steel in 1959 will probably reach 2.9 million tons. The 1958 new-order total is expected to be 2.65 million tons.

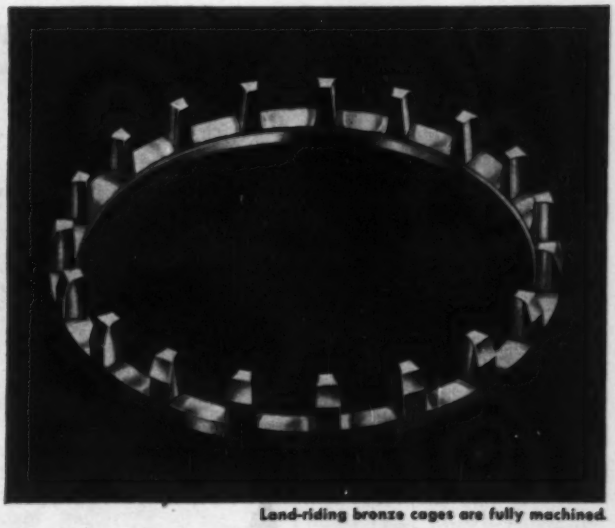
Biggest rise next year, Mr. Morris predicts, will be in structural steel for highway bridges.

Creative Urban Building Will Be Conference Theme

Creative trends in urban building will be the theme of the fourth National Construction Industry Conference to be held Dec. 10 and 11 at the Hotel Sherman, Chicago, Ill.

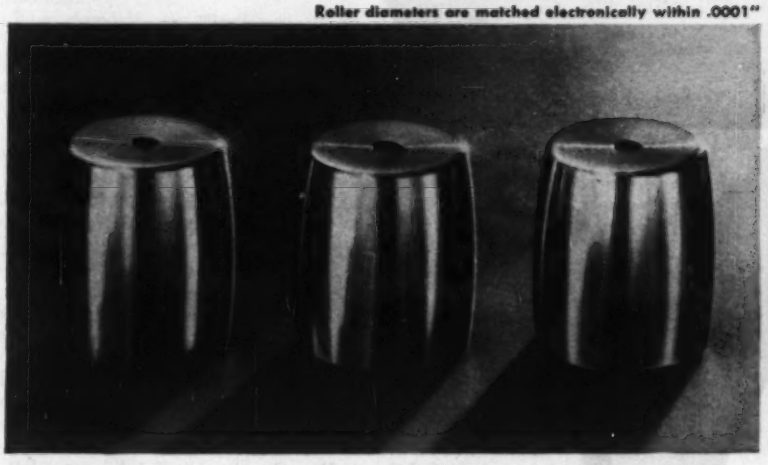
The conference will include representatives from the architectural, engineering, building and sociological fields. Reservations for the conference may be obtained from: M. J. Jans, Armour Research Foundation, 10 West 35th St., Chicago 16, Ill.

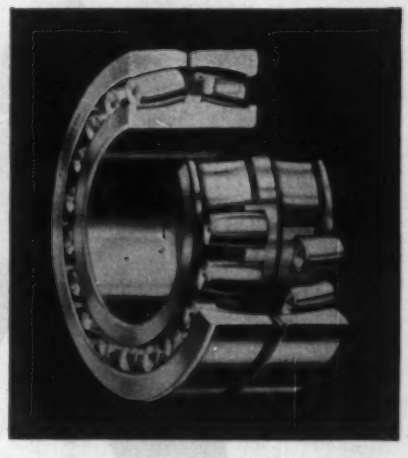
Center flange guides rollers to peak performance.



Land-riding bronze cages are fully machined.

Roller diameters are matched electronically within .0001"





Consider every design feature and you'll choose Torrington!

Torrington has compromised none of the operating design features of its Spherical Roller Bearing, because application experience has proved them essential to superior bearing performance.

There's no substitute for the stabilizing effect of the integral center guide flange. Torrington's asymmetrical roller seeks this flange under load. Skewing and stress concentrations are eliminated. Every roller carries its share of the load, for roller diameters are matched electronically within .0001" for even load distribution.

Rollers are precisely spaced by fully machined land-riding bronze cages that withstand even the high stresses of eccentric service. Two independent cages, one for each row, prevent roller drag and side stresses under thrust loads. Size-stabilized races prevent "growth" or change in dimension in service.

These features mean a cooler-running, longer-lasting bearing. When you buy bearings, look into *every* detail, and you'll choose Torrington. **The Torrington Company, South Bend 21, Ind.—and Torrington, Conn.**

TORRINGTON BEARINGS

District Offices and Distributors in Principal Cities of United States and Canada

Superior performance features of
TORRINGTON SPHERICAL ROLLER BEARINGS:

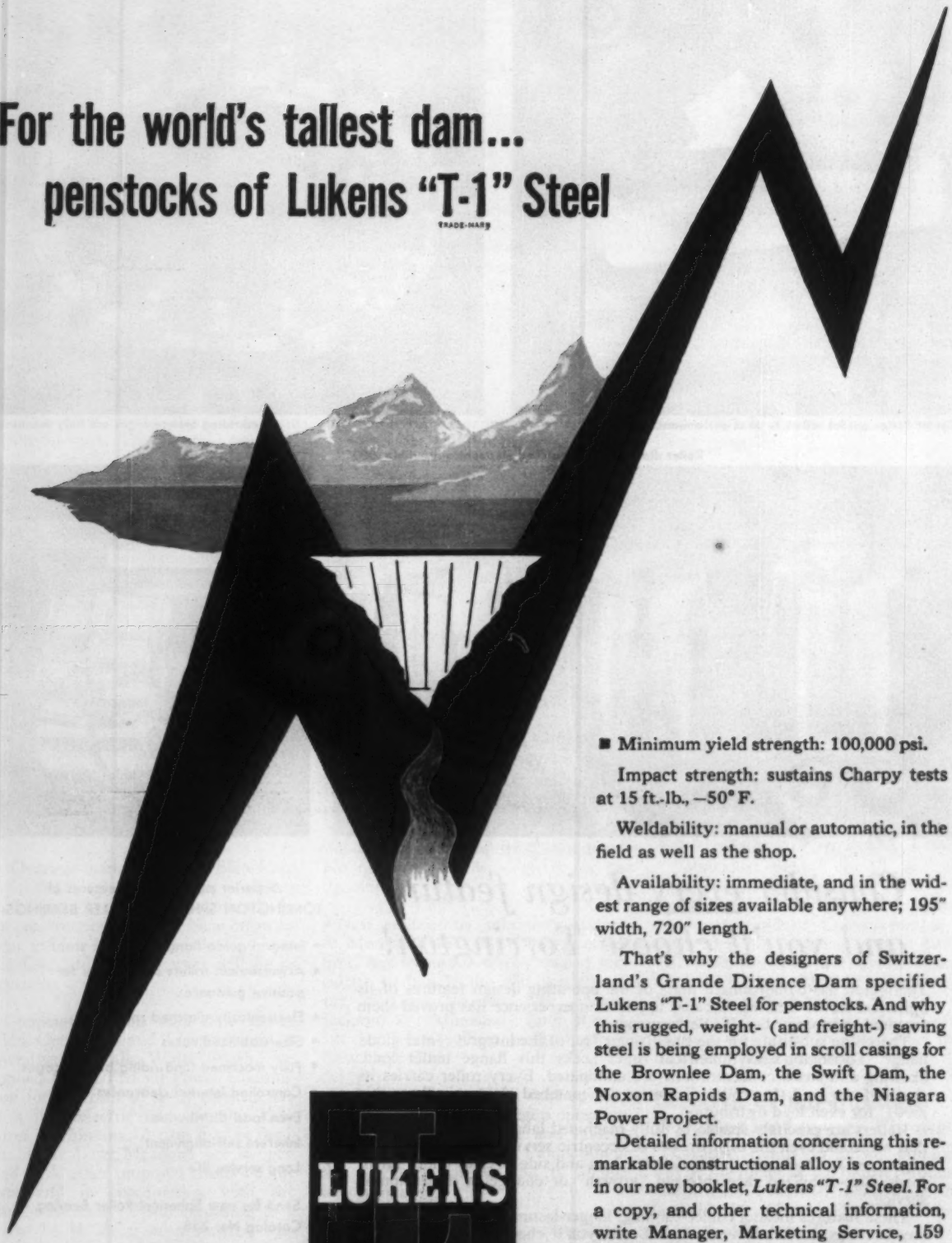
- Integral guide flange for roller stability
- Asymmetrical rollers seek flange for positive guidance
- Electronically matched rollers
- Size-stabilized races
- Fully machined land-riding bronze cages
- Controlled internal clearances
- Even load distribution
- Inherent self-alignment
- Long service life

Send for new Spherical Roller Bearing Catalog No. 258

SPHERICAL ROLLER • TAPERED ROLLER • CYLINDRICAL ROLLER • NEEDLE • BALL • NEEDLE ROLLERS • THRUST

For the world's tallest dam... penstocks of Lukens "T-1" Steel

TRADE-MARK



■ Minimum yield strength: 100,000 psi.

Impact strength: sustains Charpy tests at 15 ft.-lb., —50° F.

Weldability: manual or automatic, in the field as well as the shop.

Availability: immediate, and in the widest range of sizes available anywhere; 195" width, 720" length.

That's why the designers of Switzerland's Grande Dixence Dam specified Lukens "T-1" Steel for penstocks. And why this rugged, weight- (and freight-) saving steel is being employed in scroll casings for the Brownlee Dam, the Swift Dam, the Noxon Rapids Dam, and the Niagara Power Project.

Detailed information concerning this remarkable constructional alloy is contained in our new booklet, *Lukens "T-1" Steel.* For a copy, and other technical information, write Manager, Marketing Service, 159 Lukens Building, Coatesville, Pa.

LUKENS STEEL COMPANY, COATESVILLE, PA.

World's Leading Producer of Specialty Carbon, Alloy, Armor & Clad Steel Plate • Heads • Plate Shapes • For Qualified Equipment Builders

How to Keep the Right to Hire

- **Florida contractors have come up with a simple solution to the hiring hall clean-up problem**
- **Their new hiring procedure is easy to use, legal and it's not made part of the labor contract**

A new proposal by Florida contractors enables them to retain their right to hire and fire without any assistance or interference from unions. And they're not going to write any formal hiring hall provisions into their labor contracts.

The proposal was developed in St. Petersburg by local and national officers of the Associated General Contractors of America, Inc. It is based on this principle: No one can refuse to hire a worker simply because he is not a union member.

Under a new set of rules that form part of the Florida proposal, AGC contractors are told three things:

- They should not ask job applicants if they are union members.
- They can't turn an applicant down because he belongs or does not belong to a union.
- They can, however, notify unions of job openings provided they insist on doing their own interviewing and hiring.

• **Why they did it**—The plan adopted by the Florida West Coast Chapter of AGC is an answer to the National Labor Relations Board mandate that contractors and unions put an immediate end to closed shop practices.

That mandate was announced in the Mountain Pacific case and is now enforced by the severe financial penalties of the Brown-Olds rule. It forbids discriminatory hiring practices. Common examples are contractor commitments to hire only members of a certain union, to require union clearance cards, or to participate in a referral system designed and operated by a union.

The Florida plan is in line with the national AGC's opposition to any move promoting the use of union hiring hall arrangements.

Typical of such a move is the highly technical and complex hiring procedure that was recently recommended by the plumbers union (ENR Nov. 13, p. 119). That procedure, which of course is also legal, calls for exclusive but non-discriminatory hiring arrangements that must be spelled out in labor contracts.

The Florida AGC plan has the merits of simplicity, but it runs the risk of letting contractors get in trouble through carelessness in hiring practices. (The NLRB mandate applies to all hiring procedures, whether written or oral.)

• **Hiring instructions**—To guard against this, the Florida group has devised a set of rules or instructions for the guidance of local AGC members, who will do their own hiring from now on. The rules cover both hiring and firing because closed shop violations can occur at either end of employment.

The nine hiring instructions are these:

- Base your selection of applicants on experience, past employment by the company and physical ability to do the job safely.
- You may call a union for men but, if you do, use language something like this: "We have openings for five men to do form work. If you have applicants for work having the necessary skill required, will you please ask them to see Mr. Jones for a job interview."
- Don't ask applicants if they belong to unions.
- Don't refuse to hire a man because he is or isn't a union member.
- Don't tell an applicant you do your hiring through a union or that he must clear through a union.
- Don't refuse a man work because of race, color or creed.
- Don't offer to pay a man a higher rate of wages or more overtime than he receives from his present employer.
- If you don't have a job for an applicant, tell him so—don't tell him you might hire him later.
- Don't call for a man by name unless you actually know of the man's qualifications or unless he has worked previously and satisfactorily for you.

• **How to fire**—The instructions for laying off or firing workers are just as explicit. The principal rule is not to fire a man for membership or nonmembership in a union. Other suggestions are these:

- Tell the man why he is being laid off. Possible reasons are lack of work, not performing his job properly, not qualified for the job, working unsafely, for causes such as drinking or fighting.
- Don't fire a man because of race, creed or color.
- Don't promise to rehire a man at a later date—you obligate the company by doing so and a new superintendent or foreman may not want him.

The Florida West Coast Chapter of AGC negotiates union contracts covering 5,000 union members in 21 counties in Florida's west coast and central area.

One of the upshots of the new setup, according to AGC counsel in Tampa, is the likelihood that AGC contractors will develop more formal personnel departments in their companies.

Union Strikes Harvester After Signing at Deere

Some 36,000 workers at 15 International Harvester Co. plants went on strike last Thursday after negotiators for the company and the United Auto Workers Union failed to reach agreement on a new labor contract.

At the time of the strike John Deere Co. was the only major equipment manufacturer to have settled with UAW.

Other companies still to settle are Allis-Chalmers Manufacturing Co., Oliver Corp. and Caterpillar Tractor Co., where 15,000 workers have been idled by a strike that's gone into its second month.

Harvester officials, who have offered UAW about what the Deere contract grants, say, "We are not miles apart on agreement but a lot of little things are holding us up."

The Deere contract runs for three years and may serve as a pattern for the other settlements. It grants a package wage increase that will cost the company, when fringe benefits are included, an estimated 24 to 30 cents an hour. (This compares with an estimated 28 cents an hour in the Ford contract.)

Deere workers will get a 3% wage increase each year, a cost-of-living increase and more liberal pension, unemployment, severance, vacation and hospital benefits.

(*Labor continued on page 110*)

Carpenters Threaten to Bolt

Largest of craft unions warns AFL-CIO the key to labor unity is respect for jurisdictional rights

The United Brotherhood of Carpenters reminded the AFL-CIO last week that the labor merger can be dissolved more easily than it was formed.

The reminder took the form of a resolution authorizing the union to secede from the AFL-CIO if the union feels it is getting pushed around too much. It was issued at the carpenters' 28th general convention in St. Louis. There was only one dissenting vote.

The action was generally hailed as an answer to what the union feels are attempts to discredit its leadership. But the action's real significance lies in its defense of two basic trade union principles: union autonomy and union jurisdiction. These are the hurdles the AFL-CIO still has to clear before it can achieve labor unity.

Only time will tell what chain of events the action sets in motion. So far, there is no indication the union has any present intention of bolting the AFL-CIO.

Union President Maurice A. Hutcheson says, "We don't want" to leave the AFL-CIO. He disclaims any "intention of abusing the authority contained in this resolution."

Maurice A. Hutcheson

• **The defense**—The stage was set for the secession resolution as soon as the convention opened. The backdrop was painted with the same kind of talk and action that the teamsters have used to justify their resistance to the AFL-CIO.

One of the first orders of business was the announcement that the carpenters union, like the teamsters, has hired a public relations firm to help overcome the adverse publicity generated by Mr. Hutcheson's current brush with the law and the AFL-CIO.

The 61-year-old Mr. Hutcheson, who has headed the union since his father's retirement in 1952, is under indictment in connection with an Indiana land scandal. He has also been called before the AFL-CIO to explain his refusal to answer certain questions posed by a Senate investigating committee.

Mr. Hutcheson noted the difference between personal affairs and union matters. He said the Indiana charges are baseless and the Senate refusal was based on constitutional rights.

Like the teamsters' James A. Hoffa, Mr. Hutcheson stressed "due process of law" and condemned the art of trial by public press. He said the real test of his stewardship is what has been achieved for union members—sizeable wage increases, improved fringe benefits, 100,000 new members in a year, $26 million in pension, disability and death benefits in the last four years and a strong defense of jurisdiction.

It worked. Mr. Hutcheson was re-elected by acclamation to the presidency, which has been held by a Hutcheson since 1915. And the delegates pushed through the secession resolution to give Mr. Hutcheson greater leverage in getting the AFL-CIO to call off its corruption investigation.

• **Jurisdiction**—The language of the resolution, however, goes far beyond the corruption issue.

The carpenters, it says, "have observed with increasing regret and concern courses of action and policies by the AFL-CIO . . . which threaten and jeopardize the best interest and welfare" of the union.

The union, according to Mr. Hutcheson, was talking about union autonomy and jurisdiction—talk most members of the carpenters union understand.

The union's chartered jurisdiction extends to "all material of wood, hollow metal or fiber." This principle has been zealously guarded through the years. "Once wood," the carpenters say, "it is always the right of carpenters to install it, no matter what the new material is."

Proof of the pudding is in the present cross-section of the union. Its members are carpenters, millwrights, boat builders, coffin makers, floorlayers, underpinners, pile drivers, house movers, loggers and sawmill workers, to mention only a few trades.

Ever since the carpenters bolted the Building Trades Department in 1910 over a fight with sheet metal workers, the jurisdictional problem has been acute.

It made the union pull out of the department in the early '20s, and again in 1929. It helped to drive John L. Lewis out of the AFL to form the CIO in 1935. It caused the carpenters to bolt the AFL in 1953. And it's given the union a key role in the success or failure of all the jurisdictional peace plans labor has tried to devise.

And now, the union says, the problem is still far from a satisfactory solution.

In another resolution, supporting the secession move, the convention bluntly condemned the AFL-CIO's failure to curb industrial union encroachment on building trades' jurisdiction. It asked the federation to scrap the presently proposed peace plan for settling jurisdictional disputes with industrial unions and demanded AFL-CIO protection of craft union jurisdiction.

It also took a dim view of jurisdictional trespasses by other building trades unions on carpenter territory.

Here, the problem is a departmental rather than a federation one but it underscores the relationship between union autonomy and jurisdiction. Mr. Hutcheson said the number of jurisdictional disputes of this kind has increased and that the carpenters were involved in 74% of the 389 cases that went before the National Joint Board last year.

Neither the roots of the problem nor the carpenters' threat of secession are new.

The secession threat comes at a crucial time in the affairs of the AFL-CIO. An open break with the carpenters would cost the federation the loss of another powerful affiliate and it might precipate an open rebellion by the rest of the still-restless building trades unions (see page 111).

For this reason, the resolution may never need to be implemented. But its very existence may be enough to effect some changes in the AFL-CIO approach to union corruption and enough to strengthen the hands of the building trades in their old and bitter feud with the industrial unions.

Labor Unity Faces a Big Test

Industrial union leaders are trying to sabotage the merger, according to two building trades union leaders

The AFL-CIO's industrial unions are trying to destroy the organizational rights of building trades unions, to carve an exclusive preserve for themselves out of industrial plants and to torpedo the AFL-CIO merger.

That is how Richard J. Gray, head of the AFL-CIO Building and Construction Trades Department, and Peter T. Schoemann, General President of the Plumbers Union, describe what's behind a still-brewing fight over the right of labor organizations, such as local building trades councils, to engage in organizational activities. Those are activities undertaken to increase union membership.

The fight started with industrial union charges that the Metal Trades Department violates the AFL-CIO constitution by organizing through councils. It spread quickly to the building trades and it's still before a special federation committee that has postponed further hearings until December 15.

A decision favorable to industrial unions would have a substantial impact on construction labor relations.

Such a decision would curb activities of local councils. It could strengthen the hands of industrial unions enough to make further inroads into the principle of construction by contract. And it could split apart the AFL-CIO, which has never known internal peace.

• **A curb on organizing**—Mr. Gray, who testified before the special committee, contends the central issue is whether the organizing jurisdiction of craft councils and departments is protected in the merged federation. He claims that organizational activity has always been a primary function of local building trades councils and must remain so.

This activity, he says, has taken two forms. Both of them are familiar to contractors. One is the negotiation of labor contracts and the other is picketing, such as occurred in the Denver Building Trades case.

The 600 local councils now in existence have over 100,000 labor contracts, says Mr. Gray. The contracts generally require subcontracting to union contractors dealing with council affiliates and hiring workers who are members of council affiliates. Both of them are organizing techniques.

The legal issue, which revolves around the definition of "affiliate," is whether the AFL-CIO is going to recognize the organizational rights of individual unions only. If it does, the types of organizational activity stressed by Mr. Gray will be outlawed by the AFL-CIO and local union councils will be reduced to rather sterile entities.

• **A threat to the merger**—Mr. Schoemann says the ultimate aim of Walter Reuther's Industrial Union Department is to limit the organizing rights of all craft unions to the construction industry and to give industrial unions an exclusive on industrial plants.

This violates union tradition, he contends, and flies in the face of current technological changes that are making skilled craftsmen key men in mass-production industries. He argues that all workers have the right to join the union of their choice and that the craftsmen can't be denied access to craft unions.

Craft unions have long been skeptical of the merger. They entered the federation, according to Mr. Schoemann, with the understanding that they would be treated as "appropriate and necessary" and as "equal" in rights and stature to industrial unions. If the rug is now pulled out from under them, he warns, the AFL-CIO "will only divide and destroy the house of labor, repudiate unity and set aside the merger agreement."

The issue is now underscored by the carpenters' recent threat of bolting the AFL-CIO (see page 110).

All international unions and state and local building trades councils have until December 15 to make their views on the issue known to the special committee. The committee is composed of Joseph Keenan (electrical workers union) and Joseph Beirne (communications workers union).

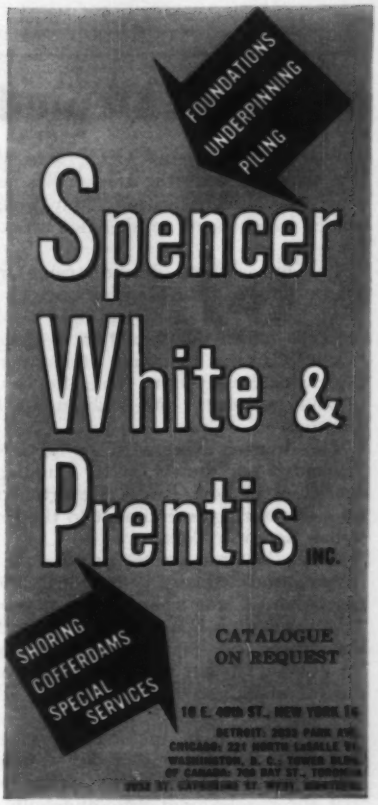
Union to Hire Consultant For Health, Pension Plans

The Western Conference of Teamsters is seeking an advisor on health and welfare and pension programs.

Its executive board has agreed to hire a consultant to evaluate the present programs. The board wants suggestions that would give a teamster member more for the money he puts into the plans.

The Western Conference covers an 11-state area.

(*Labor continued on page 112*)



WINCO
PORTABLE ELECTRIC POWER
WITH
Automatic CONSERV-er
IDLING CONTROL
EXTENDS ENGINE LIFE
REDUCES FUEL CONSUMPTION
LOWERS MAINTENANCE COST
WINCO MODEL 205B14S2D-1M 2500 watts, direct drive, 115 volts, 60 cycle A. C. Lightweight. Carrying Cradle optional.
After starting, plant automatically idles, until load of 75 watts or more is applied. Automatic CONSERV-er brings engine to full power when tool is turned on, reduces engine to idling speed when tool is turned off—all automatically. Get all the facts on this Profit-Building Winco feature.
FULL LINE OF PORTABLE AND STAND-BY AC & DC PLANTS. 300 WATTS TO 10 KW
WRITE DEPT. ENR-118
WINCHARGER CORPORATION
SIOUX CITY, IOWA
Subsidiary of Zenith Radio Corporation

Workers Denied Tax Deduction

The U.S. Supreme Court refused last week to clarify the law on the income tax deductibility of "away from home" expenses of construction workers.

The long-awaited decision came in what is known as the Peurifoy case. The court ruled that a lower court had properly denied the deduction to three North Carolina building tradesmen who worked away from home for continuous periods of 20½, 12½ and 8½ months.

The ruling is expected to set off new demands from the AFL-CIO Building and Construction Trades Department for a liberalizing amendment to the Internal Revenue Code.

As the law now stands, non-itinerant construction workers can deduct the cost of board, lodging and travel on jobs away from their homes if the expenses are "necessary" and if the jobs are "temporary" rather than "indefinite or indeterminate" in duration, either actual or anticipated.

The question in the Peurifoy case, the court said, was one of fact, not of law. It said the lower court's conclusion that the employment was "indefinite" rather than "temporary" was not erroneous.

Justices Douglas, Black and Whittaker dissented. They felt the construction workers had met these three tests laid down in an earlier case:

- The expenses must be reasonable and necessary.
- They must be incurred while away from home.
- And there must be a direct connection between the expenses and the carrying on of a trade or business.

The dissenters viewed the question as one of law as well as fact and said the word "home" should not be narrowly defined in construction cases. Effect of the decision, they asserted, is to make a construction worker "carry his home on his back" as he moves "from place to place to pursue his trade."

The Internal Revenue Service announced last summer that it would not question such deductions if the actual period away from home is less than one year (ENR Aug. 14, p. 110). Its rule of thumb test for "temporary" may now have to be changed. The situation, at best, is confused.

New Three-Year Pacts Signed

Long-term contracts and substantial wage increases remained the order of the day last week as iron workers, cement masons and laborers concluded new settlements in Houston, Toronto and Florida. The same trend was apparent in contract negotiations with Louisville insulators and Chicago lumberyard workers (laborers).

Largest of the pay boosts—a 52½-cent wage package—went to Houston iron workers in a three-year contract with Contractors Employers Association and Associated General Contractors. Workers won 22½ cents an hour now, 20 cents next July and 10 cents April 1, 1960, plus one cent an hour for a new apprenticeship fund.

The Toronto settlement, which winds up a 55-day strike and lockout, also follows the three-year pattern. Cement masons under contract with members of the Toronto Builders' Exchange will receive an immediate 15-cent increase, 15 cents next May and two 1960 pay boosts of 10 and 5 cents each.

Common laborers in Florida's Polk County concluded a less spectacular three-year contract with the Florida West Coast Chapter of AGC. Laborers have won a 27½-cent package increase, effective January 1 and payable in four installments—7½ and 5 cents next year, 7½ cents in 1960 and 7½ cents in 1961.

No hiring provisions are included in either the Florida or Houston AGC contracts. This is in line with AGC's opposition to unnecessary extension of hiring hall arrangements (see page 109).

The Louisville insulators, who struck early this month, were asking for a two-year contract with a 15-cent wage increase each year.

Laborers in some 40 Chicago lumberyards struck last week for a three-year contract with annual increases of 16, 10 and 10 cents.

AFL-CIO Merger Efforts Renewed by Toledo Unions

Attempts to merge the AFL and CIO in Toledo, Ohio, have been revived.

Both groups had abandoned talks during the election campaign. They wanted to avoid inter-union squabbles that might have endangered labor's successful effort to defeat Ohio's right-to-work proposal.

The jurisdictional dispute between building trades and industrial unions over performance of construction work in industrial plants remains a major obstacle to the merger.

OFFICIAL PROPOSALS

INVITATION FOR BIDS—ALEXANDER HAMILTON AIRPORT, ST. CROIX, VIRGIN ISLANDS, PROJECT NO. SC-2-18-40. GOVERNMENT OF THE VIRGIN ISLANDS, BY CONTRACTING OFFICER, DEPARTMENT OF PROPERTY AND PROCUREMENT, DIVISION OF PROCUREMENT. Sealed bids in single copy for furnishing all labor, equipment and materials and performing all work for the project described herein will be received until 2:00 P.M. Atlantic Standard Time Jan. 15, 1959, in the office of the Division of Procurement, Old Grammar School Building, Kings Street, Christiansted, St. Croix, Virgin Islands (First floor-Western Section), and then *publicly* opened. Information regarding bidding material, bid guarantee, and bonds, plans and specifications and other contract documents are open for public inspection at the Office of the Commissioner of Public Works, Charlotte Amalie, St. Thomas, Virgin Islands; Deputy Commissioner of Public Works, Christiansted, St. Croix, Virgin Islands; Bellante and Clauss, Architects-Engineers, Mears Building, Scranton, Penna.; Deputy Public Works Advisor, Office of Territories, Department of the Interior, Interior Building, Washington 25, D. C.; A.G.C. Office, 1113 Congress Building, Miami, Florida; Division of Procurement, Old Grammar School Building, Kings Street, Christiansted, St. Croix, Virgin Islands (First Floor-Western Section); Builders Exchange, 46 N. E. 6th Street, Miami, Florida and Home Finance Agency, Community Facilities Administration, 1608 Ponce de Leon Avenue, Santurce, 17, Puerto Rico. Plans and Specifications may be procured from Bellante and Clauss, Architects-Engineers, Mears Building, Scranton, Penna., or the Division of Procurement, Old Grammar School Building, Kings Street, Christiansted, St. Croix, Virgin Islands (First Floor-Western Section) upon deposit of $50.00 which shall be refunded to bona fide bidders upon the return of the plans and specifications in good condition within twenty (20) calendar days from the date of bid opening. To persons who procure plans and specifications upon the deposit of $50.00 and who do not submit a bid, one half the amount deposited will be refunded upon the return thereof in good condition within ten (10) calendar days from the date of bid opening. No refund will be made for return after that time. Each bid must be accompanied by a satisfactory bid security (certified check or bid bond) in an amount not less than 5% of the total bid in dollars and cents. The successful bidder will be required to furnish a performance and payment bond, each in the amount of 100 per cent of the contract price. No bid may be withdrawn until forty five (45) calendar days after the scheduled closing time for the receipts of bids. The Government reserves the right to award a contract for the project on the basis of the acceptance of any or all of the schedules or alternates, whichever course is in the best interest of the Government of the Virgin Islands. DESCRIPTION OF WORK:—Perform all work for the redevelopment of Alexander Hamilton Airport which project includes grading and paving of airfield runway, taxiway, aircraft parking apron grading and pavement, access road and auto parking, grading and pavement, airfield lighting, a terminal building, a fire and crash maintenance building and allied utilities. Wages paid on this contract must equal the minimum as stated in the Department of Labor Decision of the Secretary of Labor No. T-3,337 dated October 1, 1958. Copy attached.

(Continued on the following page)

Contractors Watch This Section—

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

OFFICIAL PROPOSALS

Bids: December 11, 1958

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Canal Law and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., eastern standard time on the 11th day of December 1958, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following Projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. Nickerson, District Engineer, 333 Broadway, Albany 1, New York						
Albany & Schenectady (Int. Tour. Rte. 890)	FISH 58-20 FAC 58-26P ST 58-2	City of Schenectady: Crosstown Connection, Interstate Route Connection 550 (Schenectady Crosstown to Thruway) N.Y.S. Thruway, Mohawk Section: Interchange No. 25 Connection Proj. U-I-IG-323(13)	2.22 (1.81 Acc.)	9" Cem. Conc. Pavt. 2 @ 24' Var. Wide=2.06 Miles; Acc. Rd.=1.81 Mi.; Conc. Pavt. Temp. Asph. Conc.=0.07 Mi.; Misc. Work=0.09 Mi.; 3 Hy. Sps. Comp. I-Beams 231', 191' and 205.3'	$160,000 Plans $5	$2,861,000
DISTRICT No. 2, L. Ketchum, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Oneida (Rte. 49)	FARC 58-172	Mohawk River-Rome, S.H. 560 Mohawk River Road-Floyd, S.H. 295 Mohawk River Road-Marcy, S.H. 296 Proj. U-518(6) & F-518(6)	6.37 (3.03 Acc.)	9" Cem. Conc. Pavt. 2 @ 24' Var. Wide=6.23 Miles; Misc. Work=0.14 Mi.; (Acc. Rds.=1.79 Mi. Conc. & 1.24 Mi. Asph. Pavt.) 2 Hy. Sps. Prestres. Conc. Beam 228.3' & 230.8'; 1 Br. Reinf. Conc. Box 24'; 1 Br. Prestress. Conc. Beam 211.5'; 1 Br. Reinf. Conc. Slab 24.6'	$265,000 Plans $5	4,776,000
Oneida (Rte. 13)	FARC 58-174	South Bay-Vienna, S.H. 8219 Proj. F-384(5)	0.32 (0.25 Acc.)	9" Cem. Conc. Pavt. 24' Wide=0.32 Mi.; (Acc. Rds.=0.25 Mi. Asphalt Concrete); Plate Girder Br. 440'	$40,000 Plans $5	730,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Seneca	FAC 58-27	City of Geneva: Lake Front Arterial, Pt. 2	2.23	9" Cem. Conc. Pavt. 2 @ 24' Var. Wide=2.74 Miles;	$130,000	2,350,000
Ontario (Rtes. 5 & 20)	FASH 58-22	Geneva Lake Front East Highway Connection Proj. U-UG-452(7)	(1.17 Acc.)	Asph. Conc.=0.24 Mi.; Gravel Top Crse.=0.08 Miles; Misc. Work=0.34 Mi.; Ped. Overpass Thru Girder 417.7'; RR Sep. Deck Girder 211.8'	Plans $5	
Livingston (Rte. 5)	RC 58-171	Caledonia-Avon, S.H. 5273 (Br. No. 5)	....	Repairing Replacing Deck, Cleaning & Painting a Truss Br. 3 Spans, 293.7'	$8,000 Plans $5	145,000
Monroe	FATS 58-1	Rochester City: Inner Loop (South Ave. to George St.) Proj. U-231(12)	0.53	Furnish & Install Traffic Signs	$1,500 Plans $5	26,000
Wyoming	FASSH 58-27	Arcade-Java Center Proj. S-290(3)	8.24	Bit. Mac.=8.19 Mi.; Misc. Work=0.05 Mi.; Prestress. Conc. Beam Br. 46.7'	$60,000 Plans $5	1,094,000
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Erie (Rte. 324)	FATC 58-3	Sheridan Drive, S.H. 9216 Proj. U-1123(2)	6.86	Traffic Signal System	$12,000 Plans $5	216,000
Erie & Niagara	M 58-17	Erie Canal Bridge E-247 at Delaware Ave. in Cities of Tonawanda & North Tonawanda	0.10	Br. Repairs; Remove & Replace Conc. Deck and Wear. Cnse.	$3,500 Plans $10	64,000
DISTRICT No. 6, James H. Thomas, District Engineer, State Office Bldg., 30 West Main Street, Hornell, New York						
Chemung	FASS 58-27	Big Flats-South Corning, C.R. 10 Proj. S-823(1)	0.42	Bit. Double Surf. Treat. Stone Comp. Weld Plate Girder Br. 587.5'	$28,000 Plans $5	514,000
Chemung & Steuben (Rte. 17)	FARC 58-170	Elmira-Horseheads Connection Pts. 1 & 2, FASH 54-15; Horseheads Village, FASH 53-5 & S.H. 5162; Horseheads-Corning, S.H. 358; East Corning-Horseheads, Pt. 2 & Pt. 1, FASH 53-6 & FASH 55-5 Proj. U-221(10), U-661(6) and F-661(6)	14.04	Chain Link & R.O.W. Fencing	$7,000 Plans $5	129,000
Orange & Ulster (Rte. 300)	FARC 58-173	Wallkill-Newburgh, Pt. 1, S.H. 1417 Newburgh-Shawangunk, S.H. 161 Proj. F-416(4)	2.07	Asphalt Concrete	$21,000 Plans $5	384,000
Ulster (Int. Tour. Rte. 587)	FISH 58-18	Interstate Route Connection 530 (City of Kingston) (Sawkill Road Highway Grade Separation) Proj. I-1150(3)	0.10	Ashph. Conc. Hy. Sep. Prestress. Conc. Beams 179'	$12,000 Plans $5	209,000
Westchester (Rte. 118)	FARC 58-97	Pines Bridge-Yorktown Heights S.H. 148 Yorktown Heights-Putnam County Line, S.H. 149 Proj. S-150(2)	0.97	9" Cem. Conc. Pavt. 24' Wide=0.92 Mi.; Misc. Work=0.05 Mi.	$18,000 Plans $5	334,000
DISTRICT No. 9, Joseph C. Frederick, District Engineer, 71 Frederick Street, Binghamton, New York						
Chenango (Rte. 12)	FAC 58-18	City of Norwich: Arterial Highway (South and North Broad Street). Proj. U-878(3)	1.02	Asph. Conc. Ty. 2B=1.01 Mi. Misc. Work=0.01 Mi.	$40,000 Plans $5	733,000
DISTRICT No. 10, M. E. Goul, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Bronx (Int. Tour. Rte. 95)	FINETC 58-5	Interstate Route Connection 511 New York State Thruway—New England Section—Sub. NE-6 (Westchester Ave. to New York City Line) (Cont. 3B) Proj. I-1068(21)	3.54	Landscaping, Fencing and Misc. Work	$62,000 Plans $5	1,122,000
Queens (Int. Tour. Rte. 495)	FICE 58-2	Interstate Route Connection 513 Clearview Expressway (Horace Harding Exp. to 32d Avenue) (Cont. 1E) Proj. I-1112(8)	1.95	Demolition of Buildings	$6,000 Plans $10 Large Size Only	113,000
Queens (Int. Tour. Rtes. 78 & 495)	FIHHE 58-2 FICE 58-3	Interstate Route Connection 514 Horace Harding Exp. Sect. II (190th St. to Oceania St.) Interstate Route Connection 513 Clearview Exp. (73d Ave. to 56th Ave.) Proj. I-862(16) and I-1112(9)	2.64 (5.35 Acc.)	9" Cem. Conc. Pavt. 2 @ 36' Var. Wide=1.58 Miles; Grad. & Drain=0.74 Miles; Misc. Work=0.32 Mi. (Acc. Rds.=2.97 Mi.; Cem. Conc. & 2.38 Mi.; Asph. Con. Pavt.) Ped. Overpass W.F. Beams 309.3'. 9 Hy. Sps. Comp. W.F. Beams 177.3', 197.2', 142', 127.9', 143.8', 167.2', 82.3', 125.2' and 203.6'	$670,000 Plans $10	12,145,000
Suffolk	FASS 58-28	William Floyd Parkway Extension Pt. 1, C.R. 46-A Proj. S-SG-531(1)	4.70	Asph. Conc.=4.62 Mi.; Misc. Work=0.08 Mi.; 1 RR Sep. Reinf. Conc. Slab 165'	$103,000 Plans $5	1,872,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal. Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: December 3, 1958

Davenport Bridge Commission

CONTRACT NO. 3
APPROACH ROADWAYS FOR THE EXPANSION AND IMPROVEMENT OF THE IOWA-ILLINOIS MEMORIAL BRIDGE
Over the Mississippi River Between Bettendorf, Iowa and Moline, Illinois
INVITATION TO TENDER

The Davenport Bridge Commission of the City of Davenport, Iowa, invites proposals for the construction of the Bettendorf, Iowa, and Moline, Illinois, Approach Roadways for the expansion and improvement of the Iowa-Illinois Memorial Bridge over the Mississippi River between Bettendorf, Iowa, and Moline, Illinois. Sealed proposals for the Work described below will be received by the Davenport Bridge Commission in the office of Mayor, City Hall, Davenport, Iowa, until 10:00 A. M. Central Standard Time, December 3, 1958, at which time the proposals will be publicly opened and read.

This Contract No. 3 consists of the furnishing of all materials for and the construction of the approach roadways and connections to City streets of Bettendorf, Iowa and Moline, Illinois, for the Iowa-Illinois Memorial Bridge, including roadway grading, drainage and paving; alterations to existing sanitary and storm sewer facilities; demolition of buildings, reconstruction of wingwalls of the existing Bettendorf abutments; construction of a bituminous paved parking lot and maintenance apron; the construction of light standard bases and the installation of rigid conduit for a roadway lighting system; the construction of concrete fixture bases and the installation of conduit for a traffic signal system, including handholes and manholes; and other incidental and miscellaneous items of work required to complete the construction of improvements to the approaches at the entrances to the bridge, which together with the construction of a second two-lane highway bridge (under other contracts) adjacent to and approximately 72 feet downstream from the existing Iowa-Illinois Memorial Bridge, will provide upon the completion of the entire project, together with the existing bridge, a four-lane divided highway facility approximately 5505 feet in length.

All work is to be accomplished without interruption to or interference with the two-lane traffic on the existing bridge and with a minimum of interruption to and interference with highway and city street traffic. Pedestrian and vehicular traffic shall be maintained and protected at all times.

A fuller description of the work to be done and of the requirements, provisions and details thereof is given in the Contract Drawings and Specifications, copies of which are on display in the office of the Mayor of the City of Davenport, Iowa; in the office of the Resident Engineer, adjacent to the existing Bettendorf Anchorage, Bettendorf, Iowa; and in the offices of the Engineers, Modjeski and Masters, Sixth Street at Forster, Harrisburg, Pennsylvania, or may be obtained from the latter office upon deposit of Twenty Dollars ($20.00) per set. Deposit checks shall be made payable to Modjeski and Masters.

Copies of cross-section sheets will be available for review by prospective Bidders at any of the above offices. Copies of the cross-section sheets will be furnished to the successful bidder.

Deposits of all bona fide Bidders will be refunded upon return of documents in good condition within ten (10) days after receipt of bids. All other deposits will be retained.

No proposal will be received unless accompanied by a certified check satisfactory to the Commission drawn upon a National Bank organized under the laws of the United States or upon a State or Savings Bank or Trust Company organized under the laws of the State of Iowa, and in any case having an office or place of business in the State of Iowa, and payable to the order of the Davenport Bridge Commission for the sum of Twenty-five Thousand Dollars ($25,000) as security for the proper execution of the Contract. Such check must not be enclosed in the sealed envelope containing the bid but must be delivered to the office of the Mayor. Receipt for the deposit will be given by the Commission.

The Commission reserves the right to waive any informalities in the bids received; to reject any or all bids; to award the Contract only to those experienced in this class of work and to the Bidder whose proposal is deemed by the Commission to be most advantageous to the public interest. The provisions of the above Invitation to Tender are made for the benefit of the Commission and no right shall be deemed to accrue to any person making a proposal by reason of the submission of any proposal hereunder or by the waiver or non-enforcement of any provision or requirement of the Invitation.

Dated: Nov.-6-58
(Mailing Address: 806 Davenport Bank Bldg., Davenport, Iowa)
DAVENPORT BRIDGE COMMISSION
Davenport, Iowa
By H. G. Lohmiller
Secretary

OFFICIAL PROPOSALS

Bids: December 9, 1958

Power Authority of the State of New York

For the Furnishing and Delivery of Gates and Stoplogs for Lewiston Power Plant
Specifications No. PA-N-23017
Niagara Contract No. NP27

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the furnishing and delivery thereof f. o. b. destination, Niagara Falls, Niagara County, New York, of the gates and stoplogs for the Lewiston Power Plant until 10:30 A. M., Eastern Standard Time on the 9th day of December, 1958, at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be opened and read aloud.

The work consists of fabricating, furnishing and delivery thereof of approximately 2,400 tons of structural steel draft tube gates, stoplogs and intake gates for the Lewiston Power Plant.

Delivery of the above items will be required beginning February 1, 1960.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, at The Coliseum Tower, 18th Floor, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans Specifications and Proposal Forms for the work will be on file in the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, and in the office of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee (certified check or bid bond) will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. Chapin
General Manager

Bids: January 22, 1959

Kingdom of Thailand Royal Irrigation Department Bangkok, Thailand

The Royal Irrigation Department of the Kingdom of Thailand requests sealed written bids for furnishing and delivering fob contractor's shipping point for the Bhumiphol Dam, Yanhee Multipurpose Project, Kinkdom of Thailand, in accordance with the Contract Documents, Invitation for Bids, No. YS-4-3, the following material:

Approximately 386,000 kilograms (aluminium) or 948,000 kilograms (steel) of metal tubing and fittings for concrete cooling and grouting systems.

Bids will be opened at 10:00 a.m., 22 January, 1959. Copies of the Contract Documents, Invitation for Bids, No. YS-4-3, may be obtained by qualified Bidders on written request on Bidder's letterhead, addressed to Royal Irrigation Department, Attention: Thai Liaison Engineer, c/o Engineering Consultants, Inc., 1940 West Mississippi Avenue, Denver 23, Colorado, U.S.A. Each request must be accompanied by a check or money order, payable to the Royal Irrigation Department, in the amount of U. S. $5.00 for each copy of the Contract Documents requested.

M. L. Xujati Kambhu
Director General
Royal Irrigation Department

OFFICIAL PROPOSALS

Bids: December 9, December 10, 1958

Triborough Bridge and Tunnel Authority

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattan, New York 35, N. Y., as follows:

Until 11 A.M. on Wednesday, December 10, 1958

For Throgs Neck Bridge Contract No. TN-11, Queens Interchange. The bid must be accompanied by a deposit in the amount of $80,000.00.

Plans, specifications and contract documents may be purchased at the office of the Authority for $45.00, which will not be refunded.

Until 11 A.M. on Tuesday, December 9, 1958

For Throgs Neck Bridge Contract No. TN-9, Electrical Work Suspended Structure and Approaches. The bid must be accompanied by a deposit in the amount of $60,000.00.

Plans, specifications and contract documents may be purchased at the office of the Authority for $25.00, which will not be refunded.

Bids: December 9, 1958

Contract PN-140.023

THE PORT OF NEW YORK AUTHORITY
PORT NEWARK
BULKHEAD REPAIRS - BERTH 10

Sealed proposals for the repair of the bulkhead at Berth 10, Port Newark, New Jersey, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, December 9, 1958, at which time said proposals will be opened and read in Room 1108.

Contract Documents may be seen at the office of the Assistant Chief Engineer for Design of the Authority, Room 1115, and copies will be furnished upon request. No deposit will be required but the documents shall be returned in good condition not later than forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, November 20, 1958

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal Advertising is $2.40 per line (or fraction) per insertion.

COPY RECEIVED: up to 10:30 A.M. Friday for issue out following Thursday subject to space open for last minute ads.

SEND COPY: to Official Proposal Division, Classified Adv. Div., P. O. Box 12, New York 36, N. Y.

EMPLOYMENT NATIONAL COVERAGE OPPORTUNITIES

DISPLAYED RATE:

The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

DECEMBER 4th ISSUE CLOSES NOVEMBER 24th

UNDISPLAYED RATE:

$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take ½ of above rate.

Box numbers—count as 1 line.

Discout of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division or ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Highway Engineers—Highway Engineers with a minimum of 3 years experience. Excellent opportunity with established consulting engineering firm in Middle West. P-7909, Engineering News-Record.

Assist. Prof.—To teach undergrad. courses in structures and mechanics. Salary open. Civil Eng., Univ. of No. Dak., Grand Forks.

Have opening for several recent Civil Engineer Graduates with military obligations completed who desire to learn the construction business. Must be ambitious, aggressive, dependable, use no intoxicants, preferably single, willing to start in the field on industrial buildings and heavy construction, and willing to move. We operate throughout Kansas and adjacent states. Our organization offers excellent opportunity for advancement. We pay top wages. Martin K. Eby Construction Co., Inc., P. O. Box 1679, Wichita, Kansas.

Supervisor for Shop and Yard wanted by Central Kentucky Contractor. Salary commensurate with experience. Reply in own handwriting giving qualifications and experience. Reply to P-9204, Engineering News-Record.

Estimator-General Superintendent for mid-western utility contractor. At least ten years experience with some engineering background. Send complete resume to P-9206, Engineering News-Record.

Engineer for Structural Design work in Mpls. Perm. position, good opportunity. Salary $6600 to $7800 depending on experience. Write Bridge Engineer Soo Line Railroad, Mpls., 40, Minn. Box 1109.

To Employers Who Advertise for Men:

The letters you receive in answer to your advertisements are submitted by each of the applicants with the hope of securing the position offered.

When there are many applicants it frequently happens that the only letters acknowledged are those of promising candidates. (Others do not receive the slightest indication that their letters have even been received, much less given any consideration. These men often become discouraged, will not respond to future advertisements and sometimes even question if they are bona fide.

We can guarantee that *Every Advertisement Printed Is Duly Authorized.* Now won't you help keep our readers interested in this advertising by acknowledging every application received, even if you only return the letters of unsuccessful applicants to them marked, say, "Position filled, thank you." If you don't care to reveal your identity, mail them in plain envelopes.

We suggest this in a spirit of helpful co-operation between employers and the men replying to Positions Vacant advertisements.

Classified Advertising Division

McGRAW-HILL PUBLISHING COMPANY

"Put Yourself in the Place of the Other Fellow"

• POSITIONS VACANT

Electronic Computer Application Engineer Wanted. Midwestern consulting Engineering firm needs graduate engineer experienced in electronic computer application to engineering problems. Reply in detail to P-9211, Engineering News-Record.

Estimator wanted by General Building Contractor. Prefer graduate Civil or Architectural Engineer with at least 5 years of estimating experience on General Building Construction. Capable of completing estimates from preliminary plans. Excellent opportunity. Location—Central Pa. P-9220, Engineering News-Record.

Sales Engineer—Estimator for structural steel and miscellaneous iron fabricator. Degree in architectural or civil engineering desirable. State experience, education, age, salary requirements and enclose snapshot with first letter to Southern Iron Works, Inc., P. O. Box 430, Alexandria, Va.

Wanted Architectural Draftsman with 2 or more years experience. Excellent opportunity with established consulting engineering firm in middle west. State education, background and experience. Reply to P-8590, Engineering News-Record.

Wanted Registered Architect with 4 or more years experience. Excellent opportunity with established consulting engineering firm in middle west. State education, background and experience. Reply to P-8615, Engineering News-Record.

Estimator wanted by Paving and Concrete Contractor. Prefer Graduate Engineer with 5 years experience. Permanent Position. Location N.Y.C. P-9314, Engineering News-Record.

City Engineer—Must have Texas Registration. Salary Open—City of 45000 Population. Apply to: G. A. Scrimshire, City Manager, Irving, Texas, Box 188.

• POSITIONS WANTED

Equipment Manager with experience and ability to handle large foreign job. Available early 1959. PW-9173, Engineering News-Record.

Field Construction Engineer—41, German, 2 years designing and drafting, 9 years field reinforced concrete, river ports, irrigation, bridges in South America. Fluent Portuguese, Spanish, French and German. Foreign or Domestic. PW-9222, Engineering News-Record.

Project Manager—Construction Engineer B.S.C.E., Reg. Engr., age 50, perfect health, 28 yrs. experience in design and construction of sanitary engineering projects, industrial, commercial and housing developments, municipal engineering, tunnels and highways. Fully capable to plan, organize and administer engineering and construction activities, either in field or office. Available approx. Jan. 15, 1959. Salary open. Prefer mid-western states bordering the great lakes or central eastern states. Job responsibility and challenge more important than location. Full resume on request. PW-9234, Engineering News-Record.

Liaison engr., 30, grad. CE. Employed in coordinating projects between owner, design and field. Desires similar position in field engineering leading to project and engineering management. PW-9235, Engineering News-Record.

Const. Supt. 25 yrs experience in commercial buildings. Available now. PW-9328, Engineering News-Record.

Management Level experience, both U. S. and foreign, in construction and related activities—promotion, organization, financing, negotiation, project snupervision and top level representation in Washington, D. C. PW-9257, Engineering News-Record.

• POSITIONS WANTED

Engineer, 27, eager for responsible construction position Alaska, preferably vicinity Fairbanks, commencing immediately or Spring. Supervisory experience, Hydro-elec, highway, structural background. D. J. Williams, Coal Harbour, B. C., Canada.

Contractor's Engineer—graduate C. E. licensed. Heavy Construction, Missile Projects, Buildings. Wide experience in Estimating, Purchasing, Cost Keeping, Field Supervision and Project Management. Thorough knowledge and experience in the successful preparation and processing of construction claims on government and State work. Presently employed by contractor in N. Y. and Phila. areas. Available within two weeks notice. PW-9251, Engineering News-Record.

Graduate Civil Engineer available, 6 years design and construction experience. PW-9266, Engineering News-Record.

Civil Engineer, MCE, 32, single, presently registered in two states. Desires position as City or County Engineer in growing area. No municipal experience. 9 years experience in related engineering work with 7½ years in responsible positions. Salary and location open. PW-9265, Engineering News-Record.

Construction or Engineering Executive, B.S.C.E., B. PH., M.A.S.C.E., 49, 26 years well rounded world wide engineering and heavy construction experience. Desires responsible position construction or engineering firm, state-wide or overseas. Salary plus profit participation preferred. PW-9264, Engineering News-Record.

Resident Engineer Airfields, twenty years experience all phases. Telephone Endicott, Two Nine Two Hundred, Extension Eight Zero Nine, New York City.

Construction Supt. General Construction. PW-8896, Engineering News-Record.

Project Mgr.-Gen. Supt. 22 years experience heavy construction, bridges, highways etc. Recently completed multi-million project in Central America. PW-9170, Engineering News-Record.

Job office Manager—Administrator 12 years doing cost, payroll, personnel, purchasing, paymaster, general office. PW-9303, Engineering News-Record.

Structural Engineer, Estimator, Spec. Writer. Thorough supervisory experience leading engineering & const. firms. Power plants, large industrials, waterfront structures, dams, airfields, bridges, etc. Permanent position wanted. M. Atl. or N.E. PW-9285, Engineering News-Record.

General Estimator & Project Manager. Seven years experience in Commercial, Industrial, and Public construction. Presently located in the south. PW-9311, Engineering News-Record.

Const. Supt. twenty six years responsible charge of grading and drainage, asphalt paving, flood control, and bridges. PW-9312, Engineering News-Record.

Construction Estimator (49) available soon. Thoroughly experienced in all types of heavy industrial, commercial & public work projects. Graduate, registered, will relocate. PW-9313, Engineering News-Record.

Structural Steel Executive, under 40, cost conscious, production minded, well versed in pricing and sales. PW-9319, Engineering News-Record.

Field Eng'r.—Estimator, 26, M.S.C.E., desires position with gen'l contractor in N.Y. area, excellent references. Available December. PW-9321, Engineering News-Record.

• PART-TIME WORK WANTED

Civ. Eng., P.E., long exper. in bridge design (concr., steel, prestr. concr.) want part time job. PTWW-9263, Engineering News-Record.

ENGINEERS

PERMANENT OPENINGS FOR QUALIFIED MEN EXPERIENCED IN THE DESIGN OR SPECIFICATIONS FOR

AIRPORTS
BRIDGES
BUILDINGS
HIGHWAYS
RAILROADS

PREFER GRADUATE REGISTERED ENGINEERS WHO SEEK LONG RANGE EMPLOYMENT WITH AMPLE OPPORTUNITY FOR PROFESSIONAL DEVELOPMENT AND ADVANCEMENT IN A STEADILY EXPANDING AND GROWING ORGANIZATION.

Paid vacation, sick leave, holiday, overtime. Excellent Employee Benefits Plan provides retirement income plus life and disability insurance. Blue Cross. Moving allowance.

Work will be in the general offices in St. Louis. Interviews can be arranged in Washington, D. C., and San Francisco also.

Please write fully, including salary data, to

SVERDRUP & PARCEL, Inc.
ENGINEERS — ARCHITECTS
915 Olive St. Louis 1, Mo.

ASSISTANT CHIEF ENGINEERS
(Design)

An internationally known consulting engineering firm has openings for two highly qualified assistant chief engineers (design) to administer and direct engineering activities of two branch offices in East and South with staffs of 30 to 50 civil, highway, structural, mechanical and electrical engineers, architects and surveyors engaged primarily in planning, design and supervision of construction on heavy construction projects under general supervision of home office. Positions involve direct liaison with clients.

Applicants must be registered graduate engineers with at least 15 years diversified experience in design, including at least 5 years in supervision of comparable integrated organizations.

Unsurpassed company paid hospitalization, life insurance and retirement benefits. 40 hour week. New air conditioned offices, liberal salary. Permanent positions with excellent opportunities for advancement. Send complete resume of education and experience with salary requirements to:

PALMER AND BAKER
ENGINEERS, INC.
P. O. BOX 346 MOBILE, ALA.

Unusual Opportunity for EXPERIENCED CONSTRUCTION MACHINERY SALES SPECIALIST

If you are looking for the opportunity to grow with a nationally known manufacturer of concrete road building and construction machinery, this is your chance. We are seeking an experienced man, 30-45 years old, as a sales specialist with headquarters in Milwaukee. Engineering degree or technical background desirable, but most important qualifications are experience and ability to sell concrete batching and road building machinery through construction equipment distributors. Salary with all traveling expenses paid. Give personal statistics and experience history in reply. Replies confidential.

CHAIN Belt Company
Box 2022
Department M
Milwaukee 1, Wisconsin

ENGINEER — Mechanical-Industrial

Experienced research & development, tool & machine design, methods, production control, incentives, cost reduction. Background in plywood, laminated products, adhesives. Handle all phases of engineering.

SALES ENGINEER — Architect or Engineer

Experienced research & development building specialty products promotion through architects, builders, financial institutions, government agencies — from basic idea through details, samples, specifications, set up production facilities.

Challenging & growth opportunities with small, progressive building specialty mfr. in the Metropolitan N. Y. area. Send detailed resume & salary requirements.

P-9275, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N. Y.

McKEE's Continued Expansion

offers excellent opportunities for

ENGINEERS DESIGNERS

who have supervisory potential.

Must have at least ten years responsible design and engineering experience in any of the following or allied fields:

STEEL PLANTS
BLAST FURNACES
OPEN HEARTHS
SINTERING PLANTS

Send resume and photo to:
G. VICTOR HOPKINS

Arthur G. McKee & Co.
2300 Chester Ave. Cleveland 1, Ohio

OVERSEAS

An exclusive association for foreign construction workers. Membership is a must. Current authenticated data on all foreign construction projects. Write for free details.

Overseas, Americans, Inc., 7 West 44 St., New York 36, N. Y. Dept. F.

WANTED PROJECT MANAGER

Experienced executive to handle all phases of large, foreign, heavy construction project. Experienced in client and contract negotiations.

P-9276, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

SURVEYING INSTRUMENTS (European)

U. S. Factory representatives offer permanent position to capable salesman; nationwide traveling and office supervision; salary and/or commission, plus expenses. Specific experience required. Send detailed resume (including education, salary desired, references) to:

SW-9346, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

ENGINEERING DESIGN PERSONNEL

Highway & Bridge Designers, Highway & Bridge Draftsmen

Openings in Pennsylvania, Ohio, Maryland & West Virginia

Career opportunities for individuals interested in professional recognition ample opportunity for advancement based on merit, plus employee retirement plan, group life insurance, hospitalization, paid vacation and holidays.

EXPERIENCE REQUIRED

Mail Resume To F. W. AHERN, Personnel Director

MICHAEL BAKER, JR., INC. *Consulting Engineers*
Baker Building Phone: SPruce 4-3010 Rochester, Penna.

GRADUATE CIVIL ENGINEER

We are looking for a young, experienced, college graduate, with a degree in civil engineering, for a position in our El Paso, Texas Office. This opening is for a field engineer. It is an excellent opportunity for a young man to obtain a desirable position with a reliable firm doing all types of construction work.

ROBERT E. McKEE
GENERAL CONTRACTOR, INC.
P. O. Box 562 El Paso, Texas

ECA SPECIALS

1—5-ton Krane Kar Mdl AX—solid tires, 12-22' Boom Rebuilt—Priced right.

1—38-B Bucyrus-Erie combination crane and dragline 75' boom. Cat. D13000 diesel engine. Independent swing and travel.

2—Special D/D Skagit, heavy duty, lifting hoist—4 speed transmission. Line pull from 10,000# to 60,000#

2—Special S/D Jaeger Hoist with torque converters, 100 HP Hercules engine. Line pull from 5,000# to 31,000#

Complete line of pile hammers—leads and boilers.

ECA EQUIPMENT CORPORATION OF AMERICA

CLIFTON HEIGHTS, PA., Box J 608, Sub. of Phila.
GROVETON, PA., Box 43-J Sub. of Pittsb.
CHICAGO 4, ILL., 327J So. La Salle St.
NEW YORK 7, N. Y., 30-J Church St.

FOR SALE

10B3 MCKIERNAN-TERRY PILEHAMMER

with H Beam Pile Helmet
Good Condition Price—$4500.00

WAGMAN PILE COMPANY, INC.
370 East Main Street, Dallastown, Pa.
Phone: Red Lion 33851

---

6 x 7 GALV. CABLE (unused) COVERED W/ PRESERVATIVE
5/16"—400' coil—$16.00
7/16"—320' coil—$17.50
STEEL LANDING MATS
H.D. Pintles
Send Check or Money Order Freight Collect.

L. ABRAMS & SON
22 Prospect Place, Neptune, N. J.
Phone Prospect 4-5900

On account of death & ill health the Madison County Construction Co., Inc., Madison, New York, is offering their complete road building equipment for sale as a unit or in part. Information can be obtained by writing Madison, N. Y. Office or by phoning either business office, Madison, N. Y., Twin Oaks 3-3141 or the field office at Tribes Hill, N. Y., Valley 9-3792.

FOR SALE

One (1) Semi-automatic Two-Stop Concrete Batching Plant for Mixer Trucks

FS-9280, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-eighth year

WILSON *Engineering Corp*
College House Offices HARVARD SQ. CAMBRIDGE, MASS.

• CONTRACT WORK WANTED

Experienced Reinforcing Steel Detailers desire work on sub-contract basis. Union Steel Engineering Co., 900 E. Front St., Cincinnati, Ohio. Tel. MA-1-4000.

• FOR SALE

Pipe Calculator—Perfected "Dial" calculator 5½" in diameter consisting of instant calculations of cut back of miter, saddle, "y" branches on pipe sizes from 2" to 48". Guaranteed accurate. Price $3.00. Dial-A-Cut, P.O. Box 1532, Savannah, Georgia.

• WANTED

Anything within reason that is wanted in the field served by Engineering News-Record can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the business paper they read.

SALE or RENT

7—Ingersoll-Rand Model FM-2 Wagon Drills with X-71 Drifters	$	500.00 ea.
2—Rex 160 Single Pumpcrete	$	*
1—Rex 180 Double Pumpcrete	$	*
1—Rex 200 Single Pumpcrete	$	*
1—Rex 200 Double Pumpcrete	$	*
1—Rex 27-E Paver	$	1,500.00
1—C-11 Turnapull with E-16 Scraper	$	7,500.00
2—DW-10 Cat Rubber Tired Tractor w/Scraper	$	7,500.00 ea.
1—D-6 Cat Tractor w/Bull-dozer Blade	$	9,500.00
1—Link Belt LS-85 on Crawlers—Comb. Shovel, Backhoe and Crane	$	7,500.00
1—C-16 Michigan ½ Yd. Backhoe on Crawlers	$	9,500.00
1—255A P&H ¾ Yd. Shovel on Crawlers	$	7,500.00
1—1055 P&H 3½ Yd. Dragline on Crawlers	$	40,000.00
1—Seaman-Andwall 7 to 20 Ton Pneumatic Roller	$	6,500.00
1—Mixermobile "C" Scoop-mobile with ¾ Yd. Bucket	$	750.00
1—Mixermobile Duo-Way Scoop with Blade and ¾ Yd. Bucket	$	1,500.00
1—Mixermobile LD-5 Scoop-mobile with 1 Yd. Bucket	$	2,500.00
1—DF6T-22F LaCrosse Trailer—23 tons capacity	$	2,500.00
1—Buckeye 306 Trencher	$	3,000.00
1—Cleveland 95-5 Trencher	$	4,500.00
1—Cleveland 110-4 Trencher	$	5,000.00
1—Lorain 820K—2 Yd. Shovel	$	40,000.00

*PRICES ON REQUEST

FURNIVAL MACHINERY CO.
Lancaster Ave. at 54th St.
Philadelphia 13, Penna.

CONTRACTORS TRUCKERS DRILLERS CRANE OPERATORS
READY MIX TRUCKERS LOGGERS MINE OWNERS PIPE LAYERS

CONVERT YOUR Rubber-Tire EQUIPMENT
to CRAWLER PERFORMANCE
Save 50%-ACT NOW!

MUD — SAND — SNOW — SWAMPS won't stop you! Flotation is increased 500% and Traction 300%. TRUCK TRACK fits small as well as large tire sizes.

$200.00 and up

Durable Drop Forged Steel Construction
Interchangeable

QUICK and EASY to mount
Send for Literature and FREE ESTIMATE

TRUCK TRACK SALES COMPANY
Div. of Steele Co.
6112 Broadway Ave. Cleveland 27, Ohio Phone DI 1-7373

SPECIAL BUYS

5—EUCLID S-7 8 TO 10 YDS. MOTOR SCRAPERS

2 to 4 years old. Can be seen working. $12,000 each; 5 for $55,000 or best offer.

D. JAMES TRIFERO
14 Cedar St. Glassboro, N. J.
TUlip 1-0634

FOR SALE

One (1) Fully Automatic Central Mix Concrete Batch Plant—1 year old—for mixer trucks & Concrete Bucket.

FS-9279, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

FOR SALE

650-B Bucyrus Erie Elec. Drag, 195', 16 yd.
15-W Bucyrus Erie Elec. Drag, 215', 13 yd.
9-W Bucyrus Erie Diesel Drag, 175', 13 yd.
7400 Marion Elec. Drag, 160', 13 yd.
625 Page Diesel Drag, 150', 10 yd.
723 Page Diesel Drag, 130', 10 yd.
621-S Page Diesel Drag, 125', 7 yd.
200-W Bucyrus Erie Diesel Drag, 125', 6 yd.
7-W Bucyrus Erie Diesel Drag, 180', 5 yd.
5-W Bucyrus Erie Diesel Drag, 100', 6 yd.
2400 Lima Dragline, 130', 5 yd.
4500 Manitowoc Drag, 120', 5 yd.
3900 Manitowoc Speedcrane, 100' boom
3500 & 3000 Manitowoc Crawler Cranes
111-M Marion Drag, 80', 4 yd.
1055 P&H Drag, 80', 3½ yd.
1201 Lima Dragline, 85', 3 yd.
54-B Bucyrus Erie Drag, 80', 2½ yd.
1001 Lima Dragline, 85', 2½ yd.
95 Northwest Drag, 80', 2½ yd.
5560 Marion 26 yard Elec. Shovel
750-B Bucyrus Erie 20 yd. Elec. Shovel
5480 Marion 18 yd. Elec. H. L. Shovel
170-B Bucyrus Erie 6½ yd. Elec. Shovel
120-B Bucyrus Erie 4 yd. Elec. Shovel
111-M Marion 4 yd. Standard Shovel
54-B Bucyrus Erie 2½ yd. Standard Shovel
Unit 1020 ¾ yard Shovel
Large selection of smaller Shovels and Draglines available
Model T-750 Reich Truck Mounted Rotary and Down-the-Hole Drill
Lima Model "C" Roadpacker
Euclid Trucks—Rear & Bottom Dumps
Truck Cranes, Dozers, Scrapers, Front End Loaders, Drills, Buckets, Attachments and other Misc. equipment available.

FRANK SWABB EQUIPMENT CO., INC.
313 Hazleton Nat'l. Bank Bldg.
Hazleton, Pa. GLadstone 5-3658

At Your BUSINESS Service.

The Classified Advertising Sections (Searchlight Sections) of McGraw-Hill publications are at your service for the satisfying of almost every business need or want.

Because these publications are specialized in the field that they cover, your classified advertising of used or surplus new equipment, of securing a position of personnel, of offering or securing business opportunities will reach the right men, quickly and economically.

Classified Advertising Division

McGraw-Hill Publications, Inc.
P. O. Box 12, New York 36, N. Y.

PILE DRIVING EQUIPMENT

VULCAN AND McKIERNAN-TERRY
Steam Pile Hammers and Extractors

- DROP HAMMERS
- DRIVING CAPS
- HOISTS AND BOILERS
- STEEL LEADS
- PILE DRIVER HOSE
- STEEL SHEET PILING

CONMACO, INC.

DRexel 1-3930
820A KANSAS AVE.,
KANSAS CITY, KANS.

Late Model Used Equipment Bargains

Cat D9 Torque Tractor w/9S Cable Sl., 30 CCU, #50 Hyd. Control & #9 Ripper—200 hours—1958 Model in excel. cond., Loc. Phila., New Guar. $57,000.00

Cat D8 Torque Tractor w/8A Cable Bl. & 29 CCU—330 Hrs.—1958 Model, New Guar., Loc. Phila. $36,500.00

Cat D8 Direct Tractor w/8A Cable Bl. & 29 R CCU — 355 hrs. — 1958 Model — New Guar., Loc. Phila. $34,000.00

Cat D8 Torque Tractor w/8S Cable Bl. & 29 R CCU, 565 hrs. — 1958 Model — New Guar., Loc. Phila. $35,500.00

Cat D8 Direct Tractor w/8U Bl. & #30 F CCU, 841 hrs. — 1958 Model — New Guar. $31,000.00

Int. TD24 Tractor w/S Bl. & P29 Rear CCU — 1955 Model — Certified Guar., Loc. Phila. $15,500.00

GILES & RANSOME, INC.
CONSTRUCTION EQUIPMENT
2729-33 Hunting Park Ave., Philadelphia 29, Pa.

FOR SALE:

200C SUPER-VULCAN

Pile hammer with standard base and sheave type cylinder head. This one year old hammer has never been used.
Write

SHAPPERT ENGINEERING CO.
Belvidere, Illinois

FOR SALE

48B Bucyrus Erie Shovel diesel 2 cy
10,000' 9" x 9" road forms
1,550' 8" x 8" road forms*
2,500' 18" x 12" airport forms*
*Used four months only

WILLIAMS CONSTRUCTION COMPANY
Box 5045 Balto. 20, Md. Murdock 6-0800

FOR SALE
DELMAG DIESEL PILEHAMMER

Type D-12, Energy Blow—22,000#, New Fuel Pump, Good Condition, Serial #5175.
Sale price fob Pennsylvania Prestress, Inc. located 3 miles North of York, Pa. on Old US Route 111. *$6000.*

WAGMAN PILE COMPANY, INC.
370 East Main Street, Dallastown, Pa.
Phone: Red Lion 33851

NEW TRUCK CRANES FOR RENT

25 and 35 Ton Bay City Truck Cranes—Draglines with long booms and jibs.

KINGSTON CONTRACTING CO.
WEST POINT, PA.

CLOSE OUT! TANK TRAILERS!
— CHOOSE FROM 10 —

4,000 gal. capacity. Tandem axles. Ideal for road sprinkling, gas and fuel oil transportation.

MEMPHIS EQUIPMENT CO.
766 So. Third, Memphis, Tenn. • JA 5-7841
Allegheny Branch: Chambersburg, Pa. • CO 3-4194

TRAILS

MIDWEST STEEL CORP.
502 DRYDEN STREET
CHARLESTON, W. VA.

PILING

SURPLUS NEW and USED — For Sale, Wanted or Rent

SURVEYING INSTRUMENTS

USED • REBUILT • SALE
RENT • REPAIRING

We do a Nation-wide business in
STEEL SHEET PILING

IMMEDIATE SHIPMENT
815 pcs. 75 to 30 ft. Beth. SP-6a—New York
100 pcs. 62 ft. Beth. ZP-32—Connecticut
103 pcs. 60 ft. MZ-27—Tennessee
150 pcs. 60 ft. SP-4—W. Virginia
290 pcs. 60 to 30 ft. M-16 & M-115—Tennessee
370 pcs. 60 to 30 ft. M-115 & M-116—Indiana
150 pcs. 34-30 ft. M-116—Michigan
81 pcs. 25 ft. M-115—Mississippi
220 pcs. 15 ft. M-115—Missouri
Other lengths and sections at various locations. Storage yards at CHICAGO, BUFFALO & MEMPHIS.
Also 10" x 42# and 12" x 53# BP 60' in stock.

PILE DRIVING EQUIPMENT

VULCAN AND McKIERNAN-TERRY PILE HAMMERS & EXTRACTORS
All Sizes—For Rent & Sale—Immediate Shipment

MISSISSIPPI VALLEY EQUIPMENT CO.
1908 Railway Exchange Bldg.
St. Louis 1, Mo. CHestnut 1-4474

NEW, SURPLUS
STEEL SHEET PILING

BELVAL Z
perfect range of corrugated sections most economical section moduli

AMERLUX STEEL PRODUCTS CO.
NEW YORK 17, N. Y.
Direct Mill Office of the
ARBED
STEEL MILLS
IN LUXEMBOURG

BELVAL P *straight web section best Bethlehem backing*

INSTRUMENT REPAIR AND SALES

Midwest distributors for:
- Buff & Buff Mfg. Co.
- C. L. Berger & Sons
- David White Instr. Co.
- Eagle Instrument Co.
- Relatape, Inc.

PROMPT REPAIR SERVICE
YEARS (50) EXPERIENCE
All types Transits and Levels

INSTRUMENT SALES CO.
ILLINOIS
CHICAGO — RICHMOND
3947 W. Lawrence Ave. — TECHNICAL DIVISION
PHONE: CORnelia 7-4646 — PHONE: 2153

H & STEEL SHEET PILING

3700 PCS. BETH. SP6, A65' 50' 55' & 48' & 40'
450 PCS. MP112—12' 25' 40' & 60'
447 PCS. BETH.—AP3 25 & 30, 40 & 60 FT.
790 PCS. BETH.—DP2—31' 35' 40' 50' 60'
1200 PCS. ZP30-ZP32—28' 36' 50-60' & 65'
1300 PCS. BP10-BP12—BP14—55' to 60'
112—8'—300 15'—92 pcs 20' Corrugated

PILING BOUGHT—SOLD—RENTED
STOCKS: N. Y.—BOSTON—BUFFALO
MONTREAL—BALTIMORE—JACKSONVILLE
RICHMOND—VANCOUVER—NEW ORLEANS

DIESEL LOCOMOTIVE
12—Gen Elec. 100, 80, 65, 45 & 25 ton
5—Plymouth 10, 20 & 35 ton

5—AMER. GANTRY WHIRLEY CRANES
5—25R—165' Boom—20R—139' Boom
1 Clyde 14S 100 Steam 28 Ton 100' Boom

R. C. STANHOPE, INC.
60. E. 42nd St. N. Y. 17, N. Y.
Telephone MU-2-3075

HY DRACHMAN STEEL CORP.
STRUCTURAL STEEL

The Contractors Steel Supply House
52-25 2nd St., Long Island City, N. Y.
RAvenswood 9-1262

STEEL IS OUR BUSINESS

GURLEY

FACTORY REPAIRS

Send your instrument directly to Gurley for repair, rebuilding, adjustment.
Write for "Repair Service" leaflet plus 20-page "Surveyor's Notebook Tips."

W. & L. E. GURLEY
Dept. R, Troy, New York

PIPE

ALBERT PIPE SUPPLY CO. INC.

PILING • PIPE • CULVERTS • VALVES & FITTINGS

ASBESTOS CEMENT PIPE • ALUMINUM PIPE

103 VARICK AVE., BROOKLYN, N. Y. • HY 7-4900

ASSOCIATED PIPE & FITTING CO.

PILING PIPE SHELLS MANDREL FITTINGS	K & M ASBESTOS CEMENT PIPE	CULVERTS CIRCLE ARCH SECTIONAL

P. O. BOX 67, CEDAR GROVE, N. J. • CE 3-4000

PROFESSIONAL SERVICES

Cards arranged by areas, states, cities, names

Additional cards on following pages

NEW ENGLAND

Goodkind & O'Dea

Consulting Engineers

Design and Supervision
Foundations, Structures, Highways

1214 Dixwell Ave. Hamden, Conn.
610 Bloomfield Ave., Bloomfield, N. J.
325 Spring Street, New York 7, N. Y.
7956 Oakton St. Chicago 31, Ill.

The Clarkeson Engineering Co., Inc.

Engineers and Consultants

Bridges and Highways
Expressways
Investigations and Reports
Supervision of Construction
Traffic and Parking Studies
Waterfront Facilities

285 Columbus Avenue, Boston 16, Mass.
Suite 200, 2000 P St. NW, Wash. 6, D.C.

Fay, Spofford & Thorndike, Inc.

Engineers

Airports, Bridges, Express Highways
Water Supply, Sewerage and Drainage
Port and Terminal Works
Industrial Bldgs.
Incinerators and Power Plants

Designs Investigations
Supervision of Construction

Boston, Massachusetts

Jackson & Moreland, Inc.
Jackson & Moreland Int'l., Inc.

Engineers and Consultants

Electrical—Mechanical—Structural

Design and Supervision of Construction
for
Utility, Industrial and Atomic Projects

Surveys—Appraisals—Reports

Machine Design-Technical Publications
Boston New York

Chas. T. Main, Inc.

Engineers

Design and Supervision of Construction for Industrial Plants—Electrical, Steam and Hydraulic Engineering—Investigations, Reports, and Appraisals.
Boston, Mass. Charlotte, N. C.

Metcalf & Eddy

ENGINEERS

Investigations Reports Design
Supervision of Construction and Operation
Management Valuation Laboratory
1300 Statler Building, Boston 16

Moore Survey & Mapping Corp

Engineers *Surveyors*

Aerial surveys, Ground surveys, Geodetic Control, Hydrographic surveys, Construction surveys, Tax Maps.
29 Crafton Circle Shrewsbury, Mass.

MIDDLE ATLANTIC

Ewin Engineering Corporation

Designers of Port Facilities, Foundations, Industrial Plants, Bridges, Highways, Sewage Disposal and Municipal Projects.

1367 Connecticut Avenue N.W.
Washington, D. C.

DuPont Plaza Center, Miami 32, Fla.
150 Savannah St. Mobile, Ala.

Airways Engineering Corp.

Airports, highways, dams, fuel storage, pipe lines, aerial topographic mapping.
1212 - 18th St., N.W.,
Washington 6, D. C.
Phone: REpublic 7-8131

Penniman & Browne, Inc.

Engineering Division

Soils Engineering—Test Borings Load Testing—Asphalt & Concrete Design—Field and Plant Control Steel Inspection—Mobile X-Ray
6252 Falls Rd. Baltimore 9, Md.
Valley 5-6511

Whitman, Requardt & Associates

Engineers—Consultants

Civil—Sanitary—Structural
Mechanical—Electrical

Reports, Plans, Supervision, Appraisals
1304 St. Paul St., Baltimore 2, Md.

Maddox and Hopkins

Engineers and Surveyors

Plane and Geodetic Surveys
Topographic Maps — Photogrammetry

Highways, Utilities, Structures
8506 Dixon Ave., Silver Spring, Md.

Greer Engineering Associates

Soils Engineers

Site Investigations; Foundation Analyses for Buildings, Bridges, Airports, Highways, Earth Dams, Pavements; Field Inspection; Laboratory and Field Testing for all types of Earth work.
98 Greenwood Avenue Montclair, N. J.

Louis Berger & Associates

Consulting Engineers
Studies, Design and Supervision
Highways—Structures
Airfields—Foundations

177 Oakwood Avenue Orange, N. J.
2nd & Locust Streets Harrisburg, Pa.
Baltimore, Md., Geneva, Switz.

Joseph S. Ward

Consulting Soil and Foundation Engineer

Site Investigation, Boring Supervision, Laboratory Soil Testing, Foundation and Pavement Analysis and Design, Construction Supervision, Engineering Reports and Consultation

91 Roseland Avenue Caldwell, N. J.

Edwards and Kelcey

Engineers and Consultants

Highways—Structures
Traffic—Parking
Terminal Facilities

3 William St., Newark 2, New Jersey
Boston Salt Lake City New York

Porter, Urquhart, McCreary & O'Brien

O. J. Porter & Co.
CONSULTING ENGINEERS

Airports — Highways — Expressways — Buildings — Bridges — Dams — Harbors — Foundations — Stabilization — Pavements
Reports, Designs & Supervision

415 Frelinghuysen Ave., Newark 5, N.J.
4201 Sunset Blvd. Los Angeles 29, Cal.
1421 - 47th Avenue Sacramento 22 Cal.
1140 Howard Street,
San Francisco 3, Cal.

Boswell Engineering Co.

Consulting Engineers

Highways, Airports, Municipal

Ridgefield Park, New Jersey
Salt Lake City, Utah

Allen H. Nicol

Consulting Engineering Geologist

Construction Materials Surveys
Geologic Feasibility Studies
Site Investigations

1025 Connecticut Avenue
Suite 803
Washington 6, D.C.
EXecutive 3-2940

When you need a SPECIALIST in a hurry . . .

Engineering News-Record's Professional Service Section offers the quickest, most direct method of contacting consultants who may be available NOW.

B. K. Hough

Consulting Engineer
Soils & Foundation Engineering

Site investigations, soil testing, design analysis for earthworks, foundations and pavements, field inspection, engineering reports, consultation.

121 E. Seneca St. Ithaca, New York

Ammann & Whitney

Consulting Engineers

Design and Supervision of Construction of Bridges, Highways, Expressways, Buildings, Special Structures, Airport Facilities.
111 Eighth Ave., New York 11, N. Y.
Milwaukee Washington Philadelphia

Barker & Wheeler

Water Supply — Utility and Industrial
Sewerage — Valuations
Sewage Disposal — Reports
Power Systems

New York City, 11 Park Place
Albany, N. Y., 36 State St.

Berstow, Mulligan & Vollmer

Engineers

Surveys, Design & Construction Supervision, Highways, Expressways, Parks
Movable and long-span bridges
Prestressed Structures — City-Planning and Municipal Engineering
49 W. 45 St. New York 36, N. Y.

Blauvelt Engineering Co.

CONSULTING ENGINEERS

Highways,
Bridges,
Reports

488 Fourth Avenue
New York 16, N. Y.

Bogert and Childs

Consulting Engineers

Clinton L. Bogert Fred S. Childs
Ivan L. Bogert Donald M. Ditmars
Robert A. Lincoln Charles A. Manganaro
William Martin

Water & Sewage Works Refuse Disposal
Drainage Flood Control
Highways & Bridges Airfields
145 E. 32nd St. New York 16, N. Y.

Bowe, Albertson & Associates

Engineers

Sewage and Water Works — Industrial Wastes — Refuse Disposal — Municipal Projects — Industrial Buildings — Reports — Plans — Specifications — Supervision of Construction and Operation — Valuations — Laboratory Service
75 West Street New York 6, New York

Buck, Seifert and Jost

Consulting Engineers

Water Supply — Sewerage — Hydraulic Developments—Reports and Valuations, Chemical and Biological Laboratories.
New York City, 112 E. 19th St.

Ebasco Services Incorporated

ENGINEERS
CONSTRUCTORS
BUSINESS CONSULTANTS
Design and Construction
Financial and Operating Consultation
Investigations and Reports
Consulting Engineering
Appraisal

Two Rector Street New York 6, N. Y.
209 S. LaSalle Street Chic. 4, Ill.
264 Southland Life Bldg. Dallas 1, Texas
611 Equitable Bldg. Portland 4, Ore.
120 Montgomery Street San Francisco 4, Cal.
1625 Eye Street, N.W. Wash. 4, D. C.

Hardesty & Hanover

Consulting Engineers

Bridges
Long Spans of All Types
Movable—Lift, Bascule and Swing
Hanover Skew Bascule
Steel and Concrete Spans
Grade Crossing Eliminations

Expressways and Thruways
Other Structures
Foundations
Supervision, Reports, Appraisals

101 Park Avenue, New York 17, N. Y.

Gibbs & Hill, Inc.

Consulting Engineers
Water, Sewage & Industrial Waste Treatment Works—Roads, Bridges & Railroads—Conventional & Nuclear Power Generation — Electric Transmission & Distribution Systems—Industrial & Communication Facilities.
Los Angeles NEW YORK Tampa

Frederic R. Harris, Inc.

CONSULTING ENGINEERS

Reports • Feasibility Studies • Evaluations • Designs • Port Development Foundations • Highways and Bridges Shipyards • Marine Structures • Floating Dry Docks • Graving Docks • Bulkheads • Piers • Wharves • Power Plants • Industrial Buildings

27 William Street, New York 5, N. Y.
1915 Tulane Avenue, New Orleans, La.

Hazen and Sawyer

Engineers

Richard Hazen Alfred W. Sawyer
H. E. Hudson, Jr.
Water and Sewage Works
Industrial Waste Disposal
Drainage and Flood Control
122 East 42nd St. 3333 Book Bldg.
New York 17, N. Y. Detroit 26, Mich.

Howard, Needles, Tammen & Bergendoff

Consulting Engineers
Bridges, Structures, Foundations, Express Highways
Administrative Services

1805 Grand Ave., 99 Church St.
Kansas City 8, Mo., New York 7, N. Y.

Hunting Technical Services

Aerial photography, topo mapping, photogeology, soil studies, geophysics for engineering, mineral and oil projects in USA and overseas.

57 Park Ave., New York 16, N. Y.
London Sydney Caracas
Paris Johannesburg Toronto

King & Gavaris

CONSULTING ENGINEERS

Bridges, Highways, Tunnels
Waterfront Structures, Reports
Investigations, Foundations
Design & Supervision of Construction

425 Lexington Ave., New York 17, N.Y.

Moran, Proctor Mueser & Rutledge

Consulting Engineers

Foundations for Buildings, Bridges and Dams; Tunnels, Bulkheads, Marine Structures; Soil Studies and Tests; Reports, design and supervision.

415 Madison Ave., New York 17, N.Y.
Eldorado 5-4800

E. Lionel Pavlo

Consulting Engineer

Design, Supervision, Reports
Bridges, Highways, Expressways
Marine Structures, Public Works
Industrial Construction, Airports

642 Fifth Ave. New York 19, N. Y.

ALWAYS READY

Yes, these consultants are always ready to help you with any problem concerning engineered construction. Call on them with the assurance that you will be receiving the finest of professional advice.

PROFESSIONAL SERVICES

Cards arranged by areas, states, cities, names — **Additional cards on preceding and following pages**

Parsons, Brinckerhoff, Hall & Macdonald

ENGINEERS

Bridges, Highways, Tunnels, Airports, Subways, Harbor Works, Dams, Canals, Traffic Parking and Transportation Reports, Power, Industrial Buildings, Housing, Sewerage and Water Supply.

165 Broadway, New York 6, N. Y.

Malcolm Pirnie Engineers

Malcolm Pirnie — Ernest W. Whitlock
Robert D. Mitchell — Carl A. Arenander
Malcolm Pirnie, Jr.

MUNICIPAL & INDUSTRIAL
Water Supply - Water Treatment
Sewage and Waste Treatment
Drainage - Sewerage - Refuse Disposal

25 West 43rd St., New York 36, N. Y.

The Pitometer Associates

Engineers
Water Waste Surveys
Trunk Main Surveys
Water Distribution Studies
Water Measurements & Special Hydraulic Investigations
New York, 50 Church St.

Alexander Potter Associates

Consulting Engineers
Water Works, Sewerage, Industrial Waste, Hydraulic Works, Reports, Designs, Appraisals.

50 Church St., New York, N. Y.

Clyde Potts Assoc.

Weston Gavett - Stanley N. Williams
Consulting Sanitary Engineers
Sewerage and Sewage Disposal
Water Works and Water Supply
Valuations and Appraisals

203 Park Ave., Plainfield, New Jersey

Praeger-Kavanagh

Engineers

126 East 38th St., New York 16, N. Y.

Scheidenhelm, F. W.

Consulting Engineers

Hydraulic Engineering; Hydro-electric Development; Water Supply; Flood Control; Engineering Problems relating to Water Rights and Water Power Law; Appraisals. 50 Church Street, New York 7, N. Y.

Seelye Stevenson Value & Knecht

Consulting Engineers

Richard E. Dougherty, Consultant

Airports, Highways, Bridges, Dams, Water Supply, Sanitation, Railroads, Piers, Industrial Plants, Reinforced Concrete, Steel, Industrial Waste Disposal, Foundations, Soil Studies, Real Estate Development
Civil — Mechanical — Electrical

101 Park Avenue New York 17, N. Y.

Severud-Elstad-Krueger-Associates

Consulting Engineers
Structural Design - Supervision
Reports - Buildings - Airports
Special Structures

415 Lexington Ave., New York 17, N.Y.

Singstad & Baillie

Consulting Engineers

Ole Singstad — David G. Baille, Jr.
Tunnels, Subways, Highways
Foundations, Parking Garages

24 State St. New York 4, N. Y.

Frederick Snare Corporation

Engineers—Contractors

Harbor Works, Bridges, Power Plants, Dams, Docks and Terminals.

Difficult and Unusual Foundations A Specialty.

233 Broadway, New York City 7

Havana, Cuba — Lima, Peru
Bogota, Columbia, Caracas, Venezuela

D. B. Steinman

Consulting Engineer

BRIDGES
HIGHWAYS

Design, Construction
Strengthening, Investigations, Reports, Advisory Service

117 Liberty St., New York 6, N. Y.

Henry W. Taylor

Consulting Engineer

Water Supply, Sewerage
Refuse Disposal, Incineration
Industrial Developments

151 W. Merrick Rd., Freeport, N. Y.

Tippetts-Abbett-McCarthy-Stratton

Engineers

Ports, Harbors, Flood Control, Power Dams, Bridges, Tunnels, Highways, Subways, Airports, Traffic Foundations, Water Supply, Sewerage, Reports, Design, Supervision, Consultation.

62 West 47th Street, New York City

Lawrence S. Waterbury

Consulting Engineer

Bowling Green 9-9298
26 Broadway New York 4

The J. G. White Engineering Corp.

Design — Construction
Reports — Appraisals

80 Broad Street, New York

Keis & Holroyd

Consulting Engineers

Formerly Solomon & Keis
Since 1906
Water Supply, Sewage Disposal, Garbage & Refuse Incineration, Industrial buildings.
Troy, N. Y.

Capitol Engineering Corporation

Engineers—Constructors—Management

Bridges — Dams
Planning — Airports
Sewage Systems — Water Works
Design and Surveys — Roads & Streets
Executive Offices, Dillsburg, Penna.

Gannett Fleming Corddry & Carpenter, Inc.

ENGINEERS

Dams, Water Works, Sewage, Industrial Wastes & Garbage Disposal, Highways, Bridges & Airports
Traffic & Parking — Appraisals, Investigations & Reports.

Harrisburg, Penna.

Branch Offices
Pittsburgh, Pa. — Philadelphia, Pa.
Daytona Beach, Fla.

Grof & Myers

Consulting Engineers

Highways — Bridges — Airports
Surveys — Reports — Plans
Construction Supervision

1824 North 4th St. Harrisburg, Pa.

Robert W. Lowry, Inc.

Consulting Engineers

Robert W. Lowry M. M. Lepkaluk
Design, Supervision, Reports, Long Span & Movable Bridges, Expressways, Highways, Airports, Prestress Design, Strengthening, Soil Engineering.
227 Pine St., Harrisburg, Pa.
New York-New Orleans-Detroit-Boston

Modjeski and Masters

Consulting Engineers

Bridges and other Structures
Foundations
Highways and Expressways

900 North Sixth St. Harrisburg, Pa.
Philadelphia - Miami - New Orleans

Aero Service Corporation

Aerial topographic maps — photo-maps for engineering projects anywhere in the world—highways, railroads, cities, power and pipe lines, mining development. Soil studies and electronic surveys of large areas; resources inventories.

210 E. Courtland Philadelphia 20

Albright & Friel Inc.

Consulting Engineers

Water, Sewage, Industrial Wastes and Incineration Problems, City Planning Highways, Bridges and Airports, Dams, Flood Control, Industrial Buildings, Investigations, Reports, Appraisals and Rates

3 Penn Center Plaza Phila. 2, Pa.

Lawrence T. Beck and Associates

ENGINEERS AND CONSULTANTS

Philadelphia New York Washington

Fridy, Gauker, Truscott & Fridy, Inc.

Architects & Engineers

Water, Sewer, Waste Disposal, Roads, Airports, Power & Lighting, Petroleum Facilities, Hospitals, Schools, Public & Industrial Buildings, Reports, Plans, Supervision, Appraisals.

1321 Arch St. Philadelphia 7, Pa.

Justin & Courtney

Consulting Engineers

Joel B. Justin - Neville C. Courtney
Dams and Power Problems, Hydroelectric, River Basin Developments, Water Supply, Foundations

121 South Broad Street
Philadelphia 7, Pa.

Yule, Sticklen, Jordan & McNee

ENGINEERS

Bridges, Highways, Airports
Design, Investigations, Reports
Supervision of Construction
Civil, Structural Mechanical & Electrical

Cedar Cliff Drive
Camp Hill, Pa.

1225 Vine Street
Philadelphia 7, Pa.

5564 North High Street
Columbus, Ohio

Hunting, Larsen & Dunnells,

Engineers

Industrial Plants — Warehouses, Office and Commercial Buildings, Steel and Reinforced Concrete. Design and Supervision, Reports.

1150 Century Bldg., Pittsburgh, Pa.

Morris Knowles Inc.

Engineers

Water Supply and Purification Sewerage and Sewage Disposal, Valuations, Laboratory, City Planning.

Pittsburgh, Pa.

Peter F. Loftus Corporation

Design and Consulting Engineers

Electrical • Mechanical • Structural
Civil • Nuclear • Architectural

First National Building
Pittsburgh 22, Pennsylvania

Pennsylvania Drilling Company

Subsurface Explorations, Grouting, Industrial Water Supply, Mineral Prospecting.
Large Diameter Drilled Shafts, Reports

1205 Chartiers Ave. Pittsburgh 20, Pa.

Michael Baker, Jr., Inc.

Consulting Engineers, Civil Engineers, Planners & Surveyors; Airports & Highway Design; Water Works & Sewerage Design & Operation; Aerial Topo Maps; Surveys; Reports & Investigations; Irrigation. Home Off.—Rochester, Pa. Br. Off.: Jackson Miss.; Harrisburg, Pa.; College Park, Md.

Sprague & Henwood, Inc.

Drilling Services

Foundation Investigations, Soil Testing & Test Borings, Grout Hole Drilling & Pressure Grouting, Diamond Core Drilling

Main Office

221 W. Olive Street, Scranton, Pa.

Branches:

1009 Western Savings Fund Bldg., Philadelphia, Pa.
11 W. 42nd St., New York, New York
200 Magee Bldg., Pittsburgh, Pa.
575 Linwood Ave., N. E. Atlanta, Ga.
Box 1446—Grand Junction Colorado
Buchans, Newfoundland

Frank D. McEnteer's Associates, Inc.

Consulting Engineers

Bridges, Highways, Industrial Plants
Design, Investigations, Surveys

Terminal Building, Clarksburg, W. Va.

SOUTH

Harry Hendon and Associates

ENGINEERS
(Formerly Polk, Powell and Hendon)
Harry H. Hendon L. E. Hoffman
A. B. Jowers
Civil Engineers—Public Utilities
10 Office Park Circle, Mountain Brook
Birmingham 9, Alabama

Palmer and Baker Engineers, Inc.

Consulting Engineers - Architects

Surveys-Reports-Design-Supervision
Consulation

Transportation and Traffic Problems
Tunnels-Bridges-Highways-Airports
Industrial Buildings
Waterfront and Harbor Structures
Grawing and Floating Dry Docks
Complete Soils, Materials and Chemical Laboratories

Mobile, Ala. New Orleans, La.
Washington, D. C.

Dignum and Associates

Consulting Engineers

Civil — Electrical
Structural — Mechanical

200 Palermo Avenue
Coral Gables 34, Florida

William R. Smith & Assoc.

Civil Engineers

Foundations; Waterfront & Harbor Structures; Soil Testing; Test Boring; Load Testing; Construction Supervision; Plane, Geodetic & Hydrographic Surveys; Reports.
200 E. Broward Blvd., Fort Lauderdale, Fla.

Rader and Associates

Engineers - Architects

Sewage Disposal, Water Works, Ports, Airports, Bridges, Highways, Office and Commercial Buildings, Industrial Plants, Reports, Investigations, Consultations, Aerial Photography, Photogrammetry.
111 N.E. 2nd Avenue, Miami 32, Fla.

Law-Barrow-Agee Laboratories

Soils Engineers & Consultants

Soil Testing — Soil Boring — Rock Drilling—Load Testing—Field Control —Engineering Studies—Chemical Analysis—Physical Testing
Box 1558 Atlanta 1 Ga.
Serving the entire South

CHECK

this section whenever you need professional advice.

PROFESSIONAL SERVICES

Cards arranged by areas, states, cities, names — Additional cards on preceding and following pages

Cunningham Core Drilling and Grouting Corp.

Soil Sampling & Testing—Core Borings for Highways & Heavy Structures—Heavy Rotary Drilling—Large Earth Auger Drilling Bolled Caissons & Mineral Testing—Foundation Treatment & Pressure Grouting
P. O. Box 513 Salem, Virginia

J. Stephen Watkins

Consulting Engineers
Highways—Bridges—Sewerage
Water Supply—Industrial Plants

416 E. High St., Lexington, Kentucky
5402 Preston Highway, Louisville, Ky.
107 Hale St., Charleston, W. Va.

Engineers Testing Laboratory, Inc.

Soil Mechanics and Foundation Engineering
Soil Borings Laboratory Tests
Foundation Analysis Reports
2116 Canada Dry St. Houston 23, Texas
737 Main St., Baton Rouge, Louisiana

Eustis Engineering Company

FOUNDATION AND SOIL
MECHANICS INVESTIGATIONS

Soil Borings *Laboratory Test*
Foundation Analyses *Reports*

3435 Airline Highway
Metairie, Louisiana

Southern Mapping & Engineering Company

Planners and Surveyors:
Airports, Highway, Water, Sewage, Topography, Reports, Investigations, Pipe Line Surveys, Acquisition of Right-of-way.
216 Commerce Pl., Greensboro, N. C.

Schmidt Engineering Co. Inc.

Consulting Engineer
Investigations, Reports, Designs, Supervision Heavy Construction—Dams and Hydroelectric Projects—Foundation Explorations and Treatment—Water and Sewerage Works—Bridges & Highways
Emerson Building Chattanooga, Tenn.

Mott Core Drilling Company

Core Borings for Buildings, Bridges Foundation Soil Tests, Highways Pressure Grouting, Dams, Mine Shafts Mineral Prospecting
826-846 Eighth Ave. Huntington, W.Va.

MIDDLE WEST

Alvord, Burdick & Howson

CONSULTING ENGINEERS

Water Works — Sewerage
Water Purification — Sewage Treatment
Flood Relief — Power Generation
Drainage — Appraisals

20 North Wacker Drive, Chicago

Consoer, Townsend & Associates

Water Supply, Sewerage, Flood Control & Drainage, Bridges, Express Highways, Paving, Power Plants, Appraisals, Reports, Traffic Studies, Airports, Gas & Electric Transmission Lines.
360 East Grand Ave., Chicago 11, Ill.

REMEMBER!!

You can depend on these consultants for a fast accurate solution to your problems. Consult them when necessary.

Ralph H. Burke, Inc.

CONSULTING ENGINEERS
Complete Architectural and Engineering Services
Plans, Supervision, and Reports

Expressways - Grade Separations
Traffic Studies - Parking Structures
Underground Garages - Shore Protection
Parks - Field Houses - Municipal Works
Airports and Air Terminal Buildings

20 North Wacker Drive, Chicago 6, Ill.

Soil Testing Services, Inc.

Soil Investigations, Laboratory Testing Engineering Reports & Recommendations

Chicago: Milwaukee: Portland, Michigan: San Francisco: Kenilworth, New Jersey: Havana, Cuba

De Leuw, Cather & Company

CONSULTING ENGINEERS

Public Transit — Subways
Traffic & Parking — Railroad Facilities
Expressways — Industrial Plants
Grade Separations — Municipal Works
Urban Renewal — Port Development

150 North Wacker Drive, Chicago 6
San Francisco Toronto Oklahoma City

Roy B. Everson

S.E. Consultant Since 1900
For Purification Systems as applied to Sewage Treatment, Water Works and Swimming Pool Circulating Systems. A New System for Automatic Control
211 W. Huron St. Chicago 10, Ill.
Phone SUperior 7-3239

Greeley and Hansen

Engineers

Water Supply, Water Purification
Sewerage, Sewage Treatment
Flood Control, Drainage, Refuse Disposal

220 S. State Street, Chicago 4

Harza Engineering Co.

Consulting Engineers

Calvin V. Davis E. Montford Fuelk
Richard D. Harza

Hydroelectric Plants & Dams
Transmission Lines
Flood Control, Irrigation
River Basin Development

100 West Madison Street Chicago 6

Hazelet & Erdal

CONSULTING ENGINEERS
Fixed & Movable Bridges, Expressways, Industrial Plants, Airports, Dams.
Monadnock Block, Chicago 4, Ill.
Dixie Terminal Bldg., Cincinnati 2, O.
Commerce Bldg., Louisville 2, Ky.
Oding Bldg., Lansing 33, Mich.

Pioneer Service & Engineering Co.

Consulting and Design Engineers
Operations - - - Purchasing
Steam - - Hydraulic - Gas
Public Utilities - - Industrials

231 So. La Salle St. Chicago 4

Sargent & Lundy

ENGINEERS
Steam and Electric Plants
Utilities—Industrials
Studies—Reports—Design
Supervision
Chicago

Suhr, Peterson, Peterson & Suhr

Consulting Engineers
REPORTS—PLANS—SUPERVISION
Sewerage, Water Supply, Flood Control & Drainage, Airports, Roads, Surveys
Fixed & Movable Bridges
130 N. Wells St., Chicago 6, Ill.

Chas. W. Cole & Son

Engineers - Architects
Sewerage, Water Supply, Bridges, Highways, Toll Roads, Industrial, Municipal and Commercial Buildings
220 W. LaSalle Ave., Central 4-0127
South Bend, Indiana

The Hinchman Corporation

Consulting Engineers
World Wide Activities
CORROSION CONTROL
Surveys - Designs - Specifications
Francis Palms Building
Detroit 1, Michigan

The H. C. Nutting Company

Testing Engineers—Inspection Service
Foundation Investigation—Test Borings
Soil Mechanics—Sewage Flows
Construction Control—Concrete
Water Waste Survey

4120 Airport Road Cincinnati 26, O.

Vogt, Ivers, Seaman & Assoc.

Engineers-Architects
Highways — Structures — Expressways
Industrial Bldgs. — Harbor Facilities
Airports — Dams — Docks
Surveys — Reports
24 W. Sixth St., Cincinnati 2, O.
20 N. Wacker Dr., Chicago 6, Ill.

The Austin Company

Design and Construction
Manufacturing and Process Plants
Newspaper and Broadcasting Bldgs.
Power Plants—Industrial & Institutional
Industrial Office Buildings and Laboratories
Merchandising Bldgs. & Facilities
Plant Location Surveys

New York CLEVELAND Los Angeles
Chicago Houston Oakland
Detroit Seattle

Havens and Emerson

A. A. Burger
Harry H. Moseley J. W. Avery
Frank S. Palcosay Edward S. Ordway
F. C. Tolles, Consultant
Water, Sewerage, Garbage, Industrial Wastes, Valuation—Laboratories
Leader Bldg. Woolworth Bldg.
Cleveland 14 New York 7

The Osborn Engineering Co.

DESIGNING-CONSULTING

Industrial Plants — Office Buildings
Stadiums Grand Stands Field Houses
Bridges Garages Laboratories

7016 Euclid Ave. Cleveland 3, Ohio

Jones, Henry & Williams

Consulting Sanitary Engineers
Water works, Sewerage & Treatment
Waste Disposal
Security Building Toledo 4, Ohio

Toledo Testing Laboratory

Engineers—Chemists

Concrete—Soils—Asphalt
Inspection Research
Tests Development
Foundation Investigation
Borings—Diamond Drilling
Load Tests
Soils Mechanics Laboratory

1310 North 12th St. Toledo 2, Ohio

Consult these specialists

Let them save your time by bringing their broad experience in their specialty to bear on your problems.

WEST OF MISSISSIPPI

Heron Engineering Co.

Consulting Engineers
For all types of Aerial Tramways, Cableways, and Suspended Structures

2000 South Acoma St.
Denver 10, Colorado

Stanley Engineering Company

Consulting Engineers

Hershey Building 208 S. LaSalle St.
Muscatine Ia. Chicago 4, Ill.

Bucher & Willis

Consulting Engineers
Highways, Bridges, Structures, Planning Reports, Supervision and Investigations

Box 582,
1412 W. 47st St. 625 E. Crawford
Kansas City, Missouri Salina, Kansas

Black & Veatch

Consulting Engineers

Water - Electricity - Sewage - Industry Reports, Design, Supervision of Construction, Investigations, Valuation and Rates.

1500 Meadow Lake Parkway
Kansas City 14, Missouri

Burns & McDonnell

Engineers—Architects—Consultants

Kansas City, Missouri Phone
P. O. Box 7088 DElmar 3-4375

Russell and Axon

Consulting Engineers
Civil — Sanitary — Structural
Industrial — Electrical
Rate Investigations

408 Olive St. St. Louis 2, Mo.
Municipal Airport, Daytona Beach, Fla.

Sverdrup & Parcel, Inc.

Engineers—Architects
Bridges, Structures and Reports, Industrial and Power Plant Engineering

915 Olive St., St. Louis 1, Mo.
417 Montgomery St., San Francisco, Calif.

Wenzel & Company

Consulting Engineers

Developing The Great Northwest
Great Falls, Montana

Benham Engineering Company

Established in 1909
Design and Consulting Engineers
215 N E 23rd Street
Oklahoma City 5, Oklahoma

Spencer J. Buchanan and Associates, Inc.

Consulting Engineers
Soil Mechanics and Foundation Engineering. Civil Engineering Services. Reports, Design and Field Supervision.
310 Varisco Building, Bryan, Texas
TAylor 2-3767

Soil Mechanics Incorporated

Foundation Exploration and Testing Services

Site Investigations, Soil Borings, Field and Lab Testing, Load Tests, Reports

310 Varisco Building, Bryan, Texas
TAylor 2-3767

CHECK

this section whenever you need professional advice.

PROFESSIONAL SERVICES

Cards arranged by areas, states, cities, names

Additional cards on preceding pages

Lockwood, Andrews & Newnam
Consulting Engineers
Navigation Facilities — Public Works Airports — Earthworks — Roads, Structural, Mechanical — Electrical Reports — Design — Supervision Surveys — Valuations
Corpus Christi—Houston—Victoria, Texas

National Soil Services
Soil & Foundation Consultants
Borings—Tests
Investigations—Reports—Supervision
Main Office:
4002 Gulf St. Houston 17, Texas
Branches: St. Louis, Mo. Mexico D. F. Veracruz, Tampico

International Engineering Company, Inc.
ENGINEERS
Investigations - Reports - Design
Procurement - Field Engineering
Domestic and Foreign
74 New Montgomery St.
San Francisco 5, California

Jacobs Associates
Consulting Construction Engineers
TUNNELS—DAMS
EARTHMOVING—FOUNDATIONS
Methods, Cost Estimates, Plant Design, Management, Surveys, Engineering Geology, Materials Handling
503 Market St., San Francisco 5, Calif.

Puerto Rico Testing Services, Inc.
Soils and Foundation Consultants
Borings-Laboratory Tests-Supervision
Concrete—Materials—Designs—Reports
P.O. Box 588
Roosevelt (San Juan) Puerto Rico

Saenz-Cancio-Martin, Ingenieros Alvarez Y Gutierrez, Arquitectos
Consulting Engineers and Architects
Ave. de la Independencia 774,
Ensanche del Vedado, Habana, Cuba.

AERIAL SURVEYS

Aerial Map Service Co.
Topographic, Planimetric, Photo Maps for Highways, Mining, Resources, Construction. City Maps, Tax Maps, Photo Geology, Tellurometer Radio Distance Measurements, Triangulation, Electronic Computation.
1016 Madison Ave., Pittsburgh 13, Pa.

American Air Surveys, Inc.
AERIAL TOPOGRAPHIC MAPS & AERIAL PHOTOS FOR
• Highways • Airports • Power & Pipe Lines • Railroads • Mining • All types construction • Stockpile Inventories
Reps.—Chicago—Huntington, W. Va.
907 Penn Ave. Pittsburgh 22, Pa.

Clyde E. Williams & Assoc., Inc.
Aerial Photos - Enlargements - Topographic Maps
At large and particular scales to suit various engineering needs, e. g. Airports, City Sewer & Water, Power & Pipe lines, Reservoirs, Subdivisions, Highways, Bridges & Inventories.
312 W. Colfax Ave. South Bend, Ind.

FAR WEST

Woodward-Clyde-Sherard & Assoc.
Consulting Civil Engineers
Soil and Foundation Engineering; Earth Dams; Engineering Geology; Highway and Airport Pavement Design
1150 28th Street, Oakland, California
1240 West Bayaud, Denver, Colorado
310 V.F.W. Bldg., Kansas City, Mo.
4815 Dodge Street, Omaha, Nebraska

FOREIGN

The Foundation Engineering Company of Puerto Rico
Consulting Engineers
Foundation and Soil Mechanics Investigations, Laboratory analyses, reports and recommendations, design of structures, supervision.
P.O. Box 821, San Juan, Puerto Rico

INSPECTION & TEST

The Haller Testing Labs., Inc.
140 Cedar St., N. Y. 6, N. Y.
Testing and Inspection of Construction Materials for:
Expressways—Airports
Structures—Bridges
Complete Soils Laboratory
Test Borings—Load Tests
Boston Plainfield, N. J. New Haven

Robert W. Hunt Company
Inspection and Testing of Engineering Materials & Equipment
General Offices and Laboratories
810 South Clinton Street, Chicago 7, All Principal Cities

Johnson Soils Engineering Laboratory
Foundation Design - Highway & Airport Pavements - Construction Control - Load Tests - Shear & Consolidation Tests - MOBILE LABORATORIES
193 West Shore Ave., Bogata, N. J.
Bogata-Hubbard 7-4405

Pittsburgh Testing Laboratory
A national service with complete laboratory and inspection facilities.
Laboratories in principal cities.
Main Office: 1320 Locust St., Pittsburgh, Pa.

GEOLOGISTS

Geologic Associates
ENGINEERING GEOLOGISTS
Studies and Reports
Foundation Investigations
Specialized Drilling and Sampling
1502 8th Ave. So. — Nashville, Tenn.
Phone ALpine 5-4402

CONSULT THESE SPECIALISTS . . .

When you need professional assistance in solving difficult problems. Their specialized knowledge and broad experience can prove invaluable in saving both time and money for you.

Engineering News-Record invites other consultants to list the special services they offer on these pages.

Rates for the Professional Services section are:

PER WEEK

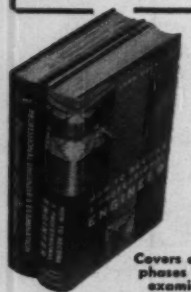
	13 times	26 times	52 times
¾"	14.35	13.35	12.45
1½"	23.85	22.30	21.00

CONSULTANTS!

This section provides you with a dignified, ethical means of presenting your specialised services to key men in engineering.

Win your PROFESSIONAL ENGINEER'S *license faster*

PREPARE TO PASS EXAMINATIONS THIS DIRECT, PRACTICAL WAY!



Here in this Library you will find complete, detailed instructions on how to get your Professional Engineer's license without difficulties or delays. It clears up questions about the what—where—how—and why of licensing regulations and examination procedures so that you can start upon this important step for an increasingly successful engineering career.

What's more, the Library brings you over 500 questions selected from actual examinations. These show you exactly the type of questions you will be asked—help you track down areas where you can improve your knowledge before you find yourself in the examination room. **For every question there is a detailed answer of the type examiners accept and credit.**

PROFESSIONAL ENGINEERS'
License Examination Library

2 volumes • 724 pages • $12

LIBRARY INCLUDES: How to Become a Professional Engineer, by J. D. Constance, and **Professional Engineer's Examination Questions and Answers**, by W. S. LaLonde.

Covers all major phases of P.E. examinations

You get over 500 questions selected from actual examinations for the Professional Engineer license, the Land Surveyor license, and the Engineer-in-Training Certificate. Representative of the examinations being given now in all states, these questions cover mechanical, electrical, civil, structural, and chemical engineering, and include engineering economics and land surveying.

10 Days' FREE Examination

McGraw-Hill Book Co., Inc., Dept. FNR-11-20
327 W. 41st., N. Y. 36, N. Y.

Send me the **Professional Engineers' License Examination Library** for 10 days' examination on approval. In 10 days I will either remit $12, plus few cents delivery, or return books postpaid. (We pay delivery cost if remittance accompanies coupon; same return privilege.)

Print name .....

Address .....

City ..... Zone.... State.....

Company & Position .....

For price and terms outside U.S.A. write McGraw-Hill Int'l., N.Y.C. 36 **Dept. FNR-11-20**

CLASSIFIED ADVERTISER'S INDEX

Abrams & Son, Louis 117
Albert Pipe Supply Company 118
Amerlux Steel Products Company 118
Associated Pipe & Fitting Company .. 118

Baker, Jr. Inc., Michael 116

Chain Belt Company 116
Conmaco, Inc. 118

Datics Corp., The 117
Drachman Steel Corp., Hy 118

Equipment Corporation of America ... 117

Furnival Machinery Company 117

Giles & Ransome, Inc 118
Gurley, W. & L. E. 118

Instrument Sales Company 118

Kingston Construction Co., Inc 118

McKee & Co., Arthur G 116
McKee, Robert E. 116
Memphis Equipment Co 118
Midwest Steel Corp 118
Mississippi Valley Equipment Company 118

Overseas Americans Inc 116

Palmer & Baker Engineers, Inc 116

Shappert Engineering Co 118
Stanhope, R. C 118
Sverdrup & Parcel, Inc 116
Swabb Eqpt. Co., Inc., Frank 117

Trifero, D. James 117
Truck Track Sales Company 117

Wagman Pile Company, Inc 117-118
Williams Construction Company 118
Wilson Engineering Corporation 117

ADVERTISERS IN THIS ISSUE

Acker Drill Co., Inc. 78
Allis Chalmers Mfg. Co., Constr. Mchy Div. 1
Aluminum Company of America 44-45
American Bitumuls & Asphalt Co. 74
American Bridge U. S. S. Div. 90-91
American Fore Loyalty Group 68
American Oil Company 7
American Sisalkraft Corp. 72
Arkwright Finishing Company 65
Armco Drainage & Metal Prod., Inc. ..... 2nd cov
Atlas Copco 38
Automotive & Aircraft Div., Amer. Chain & Cable 59
Bausch & Lomb Optical Co. 123
Bethlehem Steel Co. 66
Borden Metal Products Co. 20
Broderick & Bascom Rope Co. ..... 4th cov
Butler Bin Company 10
Clayton Mfg. Co. 75
Concrete Reinforcing Steel Institute 75
Continental Motors Corp. 12
The Curtiss Wright Corp. 49
The Datics Corporation 99
Deming Co., The 34
R. E. Dietz Co. 9
Douglas Fir Plywood Association 54-55
Du Pont de Nemours & Co. Explosives 101
Eastman Kodak Co. 43
Elgood Equipment Corp. 81
Fairbanks Morse & Co. 3
L. B. Foster Co. 18
Gahagan Dredging Corp. 73
Granco Steel Prod. Co. 60
Griffin Wellpoint Corp. 81
Gulf Oil Corp. 62-63
Hartford Fire Insurance Company Group 98
Hendrix Mfg. Co., Inc. 97
Homelite Div., Textron, Inc. 50
Johns Manville Corp. 71
Johnston Pump Co. 78
Keasbey & Mattison Co. 64
Kinnear Mfg. Co. 73
Lamson & Sessions Co. 14-15
Larsen Products Corp. 52
Lead Industries Assn. 11
Lehigh Portland Cement Company 61
LeTourneau Westinghouse Co. 82-83
Lock Joint Pipe Co. 16
Lufkin Rule Company 58
Lukens Steel Company 108
Mack Trucks, Inc. 69
Manitowoc Engineering Corp. 35
Massey-Ferguson, Inc. Indus. Div. 6
McKinney Drilling Co. 99
National Clay Pipe Manufacturers, Inc. 77
Peerless Pump Div. Food Mchy. & Chem. Corp. 95
Permacrete Products Corp. 81
Preload Company, Inc. 8
Republic Steel Corporation 36-37
Richmond Screw Anchor Co. 2
John A. Roebling's Sons Corp. 105
Rollway Bearing Company 79
Russell, Burdsall & Ward Bolt & Nut Co. 53
Servicised Prod. Corp. 70
Signode Steel Strapping Co. 76
Smith Engr. Works 4-5
Socony Mobil Oil Co., Inc. 32
Sonoco Products Co. 86; 87
Spencer, White & Prentis, Inc. 111
Sprague & Henwood, Inc. 93
E. A. Thompson, Inc. 48
Torrington Co. 107
The Union Metal Mfg. Co. 80
Vulcan Materials Co. ..... 3rd cov
Wagner Electric Corp. 56
Weinman Pump Mfg. Co. 42
Wheeling Corrugating Co. 29
Wild Heerbrugg Instruments 28
Wincharger Corporation 111
Yeomans Bros. Co. 13

Professional Services 119-122

CLASSIFIED ADVERTISING

F. J. Eberle, Business Mgr.

Employment Opportunities 115, 116
Notices
Proposals 112-114
Equipment
(Used or Surplus)
(For Rent, Sales Wanted) 117, 118
Advertisers Index 122

ENGINEERING NEWS-RECORD

330 West 42 St., New York 36—LOngacre 4-3000

ABP Member ABC

Number of copies of this issue printed 83,398

D. S. ROBERTSON, Advertising Sales Manager
HUGH J. CARLSON, Assistant Business Manager

ADVERTISING REPRESENTATIVES

Atlanta, 3—Rhodes-Haverty Bldg.,
D. C. Billian

Chicago, 11—520 No. Michigan Ave.,
L. H. Hunt, W. G. Payne
J. A. Shipley

Cleveland, 13—1164 Illuminating Bldg.,
55 Public Square
F. P. DiToro

Dallas, 1—Vaughn Bldg., 1712 Commerce St.,
Robert T. Wood

Denver, 2—1740 Broadway
J. W. Patten

Detroit, 26—Penobscot Bldg.,
D. L. Kates, R. I. Mace

Los Angeles, 17—1125 W. Sixth St.,
Knox Bourne, S. S. Tiebout

New York, 2—500 5th Ave.,
C. D. Neulen, H. T. Olsen
J. C. White

Philadelphia, 3—Six Penn Center Plaza
D. G. Jensen

Pittsburgh, 22—1111 Oliver Bldg.,
M. Russell

St. Louis, 8—Continental Bldg.,
E. B. Mingle, Jr.

San Francisco, 4—68 Post St.,
J. W. Otterson, R. C. Alcorn

OTHER SALES OFFICES:

Boston, 16—350 Park Square Bldg.,
Great Britain—E. E. Schirmer, McGraw-Hill House, 95 Farringdon St., London, E. C. 4
Europe—Michael R. Zeynel, 15, Landgraf-Wilhelm, Frankfurt/Main, Germany

NEW LOW-COST BALPLEX 760 SPEEDS HIGHWAY MAPPING

Here it is . . . the new aerial plotter specifically for highway and other large scale mapping. Now you can plot accurate large scale maps with small contour intervals . . . quickly and easily . . .with an investment of approximately $5000!

HIGH ACCURACY—LOWEST CAPITAL COST—New Balplex 760, complete, only $4950. Balplex 525, from $4600.

LOWEST COST PER MAP—Plots larger areas from fewer photographs taken at greater heights.

FAST, SIMPLE—Standard Multiplex operation, saves training time. Handles weeks of ground work in a few days!

MAIL COUPON FOR COMPLETE DATA

Bausch & Lomb
BALPLEX
PLOTTERS

BAUSCH & LOMB OPTICAL CO.
89735 St. Paul St., Rochester 2, N. Y.

☐ Send information on Balplex 760 Plotter
☐ Send information on Balplex 525 Plotter
☐ Send information on Multiplex 360 Plotter

Name .....
Title ..... Company .....
Business Address .....

Editorials

Just the Facts, Please

THE National Society of Professional Engineers is to be commended for its recent action asking all communications media to "weigh the facts" before running "engineer shortage" stories. NSPE calls publicity concerning engineer shortage a disservice to the nation and to the profession, when it is not based on sound analysis.

This is so true. Reporting any situation inaccurately is a disservice. But it should not be inferred from NSPE's perfectly proper stand that stories on engineering manpower ought not be published. What NSPE is saying, in effect, is that engineer shortage should not be proclaimed unless engineer shortage, or prospect of it, is a fact. NSPE would agree, it is assumed, that engineer surplus ought not be proclaimed either, unless it exists.

To be realistic, it must be admitted that stories about the engineering manpower situation are bound to be published. The subject simply has come to be of interest to mass media.

The real point to be made, then, is that those who do publish such stories ought to seek their information at the best source of all the facts on the subject: the Engineering Manpower Commission of Engineers Joint Council. This organization has been gathering the facts on engineering manpower since it was set up in 1950. It could have prevented many a poor analysis leading to misleading shortage or surplus stories published in mass media—if only it had been their source.

Disagreement on Connections

NEED FOR MORE INFORMATION on practical applications of structural welding is indicated by letters from ENR readers during the past year. They show that designers, fabricators and erectors disagree on methods for making the most commonly used type of welded connection—beam to column.

The disagreement came to the surface following publication of a letter asking which of two methods of connecting a beam to a column is better (ENR Jan. 2, p. 12). In subsequent discussion, readers wrote to ENR favoring one type or the other or suggesting modifications (ENR May 8, p. 14, and June 5, p. 8). An article in ENR Aug. 21, p. 34, by an eminent consulting engineer with long experience with welded construction, advocated a design that he claims combines the best features of the two methods and would be less costly and safer. But this conclusion was challenged subsequently by a fabricator (ENR Oct. 23, p. 9).

If the disagreement were merely on the economics of making a welded beam-column connection, the matter could probably be dropped with the comment that any of the proposed designs can be used, depending on personal preference of local designers and fabricators. However, the safety of some of the designs during erection appears to be questionable. Certainly, more information on this aspect is highly desirable.

Much experience has been gained with welding during the past decade to demonstrate clearly the potentials of this type of construction. And progress also has been made as a result of improvements in welding materials and equipment and of lessons learned from laboratory tests on welded joints. But there is a definite need for more research to insure safety and economy and improve fabrication and erection methods.

Better Roads, Better Living

THE International Road Federation made no fuss about it at its meeting in Mexico City last month, but it was 10 years old. And it is to be congratulated on 10 years of accomplishment. Its third international meeting of road men (they came from 64 countries) offered proof that roadbuilding is booming around the world. With appropriate modesty, IRF claims no credit for this boom in roadbuilding. But it is apparent that others credit the organization with real success in selling its motto, "Better roads mean better living."

In Mexico City, roadbuilders, construction machinery makers, and automobile, oil and tire men exchanged information on highway construction. Their glowing reports of progress added to a consensus that the next decade will see highways cutting the unpassable areas of the earth (ENR Nov. 13, p. 24). ENR's correspondent on the scene was able to report on extensive projects to lace South Africa with roads; efforts to close gaps in the Pan American Highway; and negotiations to arrange a continuous route from Europe to the Middle East. From all parts of the world came indications that highway construction is booming.

As indication that its efforts to encourage the development of highways is appreciated, the Christopher Columbus International Prize for communications was presented to IRF in Mexico City. This is a gold medal (and an $8,000 prize) awarded by the City of Genoa, Italy, to the person or group doing most to improve communications—land, sea, air or telecommunications. The award is only in its fourth year, and it is significant that IRF should be its first winner in the land communications category.

The citation mentioned IRF's promotion of the Pan American Highway and the Capetown-Nairobi Highway in South Africa and its fellowship program which has financed 173 students from 58 lands in highway and transportation engineering courses.

The Christopher Columbus medal and prize made a fitting and deserved birthday present for the International Road Federation.

New Frontiers in Service

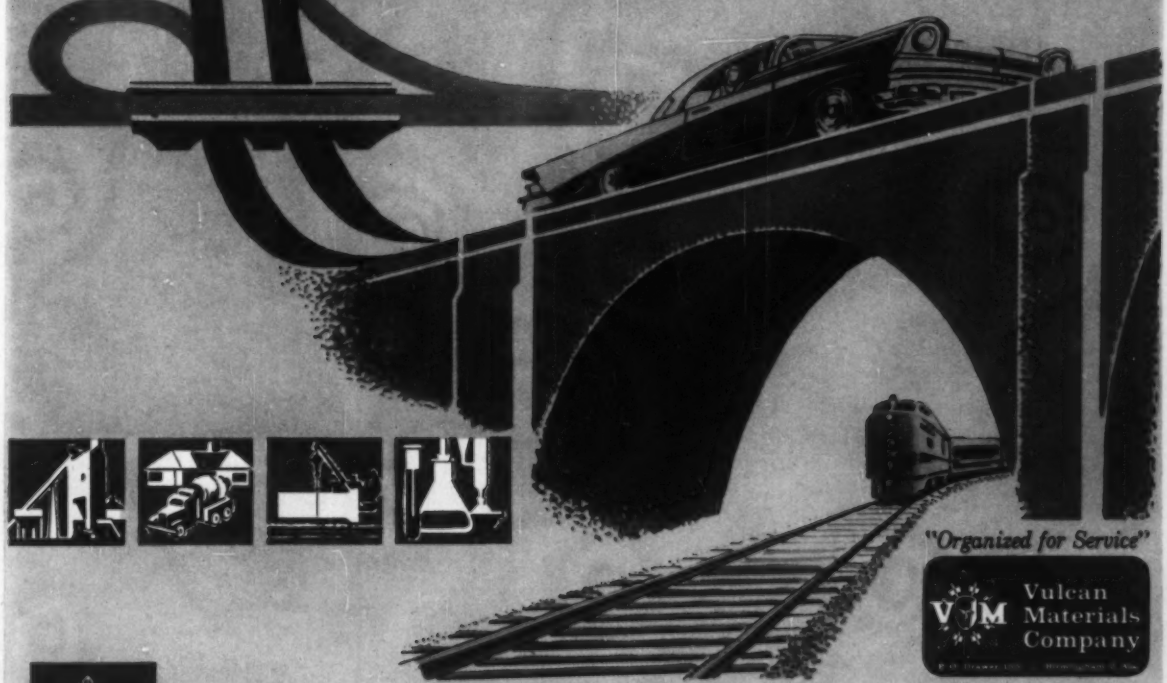
This emblem represents Vulcan Materials Company, one of the nation's major organizations serving the builders of America.

Vulcan Materials Company is a primary producer and marketer of such essential materials as ready-mixed concrete, aggregates–including slag, expanded slag, sand, stone and gravel–concrete pipe, prestressed concrete members, surfacing materials–including hot and cold mix bituminous mixtures and basic materials–metallics, chemicals and other construction materials.

A long list—for Vulcan is a *big* company. Their production facilities and quarries stretch from the Great Lakes to the Gulf of Mexico. That means prompt delivery—on even the toughest schedule.

The symbol's other meanings? Experience. Reliability. Uniform, high quality. Personal, courteous service by people familiar with your local needs and problems.

For service or for further information, call on any of Vulcan's divisions or sales offices. For the one nearest you, check the classified directory *or write* Vulcan Materials Company, P.O. Drawer 155, Birmingham 2, Ala.



"Organized for Service"

Vulcan Materials Company

SALES OFFICES in Alabama • Colorado • Florida • Georgia • Illinois • Indiana • Kansas • Minnesota • Mississippi New Jersey • Pennsylvania • Tennessee • Texas • Virginia • Wisconsin

THIS IS VULCAN MATERIALS COMPANY Birmingham Slag Division • Brooks Sand & Gravel Division Chattanooga Rock Products Division • Concrete Pipe Division • Consumers Company Division • Frontier Chemical Company Lambert Bros. Division • Montgomery-Roquemore Gravel Division • Stockbridge Stone Division • Teckote Corporation Vulcan Detinning Division • Wesco Contracting Company

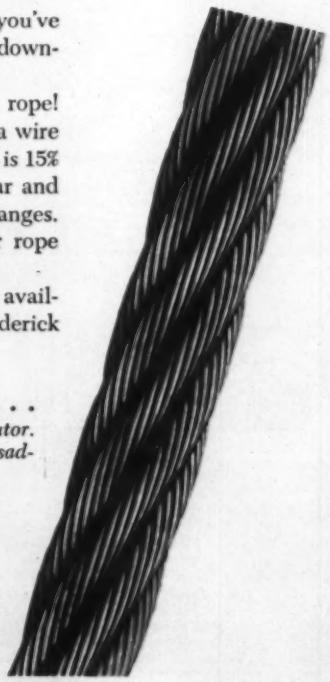
Open 'er up!

"POWERSTEEL"® is more than the match for today's most powerful machines!

With today's bigger and more powerful construction equipment, you've got to keep it working at full capacity – no babying – minimum downtime – to show a profit.

So don't shortchange today's power with yesterday's wire rope! With "POWERSTEEL" you'll get trouble-free production from a wire rope designed for today's greater horsepower and bigger loads. It is 15% stronger than improved plow steel rope – more resistant to wear and abrasion – gives longer service life – requires fewer rope changes. Many "POWERSTEEL" users report as much as 100% longer rope service in comparison to ropes formerly used!

Yellow Strand "POWERSTEEL" is always nearby – always available – at your Broderick & Bascom Distributor. See him soon! Broderick & Bascom Rope Co., 4203 Union Blvd., St. Louis 15, Mo.

NEW! YELLOW STRAND WIRE ROPE CLIPS . . .
Ask for them at your Yellow Strand Wire Rope Distributor. Heavy-duty galvanized steel U-bolt. Drop-forged steel saddle, hot dip galvanized. Easily applied.

Yellow Strand® Wire Rope